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UNITED STATES DEPARTMENT OF AGRICULTURE

INDEX TO VOLUME IX

WEEKLY NEWS LETTER

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SOURCE OF CHAULMOOGRA OIL FOUND IN FASTNESSES OF BURMA

Prof. J. F. Rock Returns from Eleven Months' Exploring Trip in Asia.

Secures Sufficient Seed of Taraktogenos Kurzii to Start an American Plantation to Produce Chaulmoogra Oil Which Has Been Found to Cure Leprosy.

The first photographs ever exhibited of the tree, *Taraktogenos Kurzii*, in its native habitat, which is the source of chaulmoogra oil, the remarkable leprosy cure, were shown to the Botanical Society of Washington, June 27, in a stereopticon lecture by Prof. J. F. Rock, plant explorer for the United States Department of Agriculture. Prof. Rock has just returned from an 11 months' exploring trip through remote portions of Siam, Burma, Assam, and Bengal. He was one of few white men ever to see *Taraktogenos Kurzii* growing, a remarkable circumstance in the face of the fact that the oil from the seeds of the tree has been prized as a leprosy remedy for hundreds of years. The explanation is that the trees grow in the fastnesses of the jungle in regions infested by various wild animals, and hitherto the seeds have been brought out only by natives, who collect them at no specific times, hence the uncertainty as to a regular supply.

Trees Bear At Eight Years.

The principal immediate result of Prof. Rock's exploration was the sending of enough of the seeds to the United States Department of Agriculture to assure the establishment of a considerable plantation under American jurisdiction. The Hawaiian Government has set apart 100 acres of ground for the purpose. The trees, while they attain great size and age, come into bearing, it is believed within eight years after the planting of the seed.

Chaulmoogra oil, as a remedy for leprosy, has been known to a greater or less extent for centuries. Prof. Rock, in fact, while in Asia, discovered in old Buddhist histories a legend of a Burmese king voluntarily exiled for leprosy about 1,000 years ago who cured himself with the oil, and likewise effected the cure of a beautiful young woman whom he afterwards married, founding a dynasty. Because of the inaccessibility of the forests producing the oil, however, no European people made any effort to study and apply the remedy until 1856, and then the British scientists who undertook the work distributed seeds of an entirely different tree, which have not the same curative properties, and it was not until 1899 that the mistake was discovered.

PLAN KITCHEN FOR CONVENIENCE.

In planning a new home or in remodeling an old one it should always be borne in mind that the placing of the stove, sink, and work table can be done in such a way as to save the housekeeper many steps in the tasks of the kitchen. Time and energy will also be saved if the shelves, cupboards, and drawers are located near the place where the supplies or equipment which they are to contain are to be used, and they will be even more convenient if they are so planned that their contents may be easily and quickly removed and replaced. In selecting the equipment only that which is most convenient and durable should be purchased. As in any well-regulated workshop, all equipment necessary for the convenience of the worker should be supplied, but that equipment should be installed first of all which will be used most often, and it should be of such a character and so located that it will result in the greatest saving of labor.

In 1902 investigations were begun by Dr. Frederick B. Power, then director of the Wellcome Chemical Research Laboratories of London, and now engaged in research work in the Bureau of Chemistry, Department of Agriculture. Dr. Power and his coworkers isolated some new physiologically active acids from chaulmoogra oil and the same acids were obtained from the oil of certain species of *Hydnocarpus*. He also prepared the ethyl ester of these acids in which form the remedy can be injected into the muscles, and a sufficient quantity can thus be introduced into the system to effect a cure. It is in this form that the oil has been used with the Hawaiian lepers, 200

(*Continued on page 6.*)

EARLY TRACTOR OWNERS STILL USE MECHANICAL POWER

Many Change Opinion Regarding the Best Size for Their Purpose.

More Than Two-Fifths Used Their First Machines for Field Work After Three Years' Wear—Six-Year-Old Tractors Still in Use.

Of more than 1,200 farmers in the Corn Belt and northern Great Plains States who purchased tractors four or more years ago, 81 per cent still use their first machines or others which they have since purchased. Nearly half of those who have bought their second machines have changed their opinions as to the best size for their purposes, as indicated by the sizes of the machines purchased. The men who had sold their first machines had kept them for an average period of a little over three years, and sold them for an average of $490, approximately half the first cost.

Depreciate One-Half in Three Years.

These facts are brought out by the replies to several thousand letters sent out by the Bureau of Public Roads to tractor owners in North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Michigan, and Ohio who had furnished reports on their machines in 1917 and 1918.

A summary of the replies from 1,219 men who are still operating the same farms or similar farms in the same locality showed that in 1920—

534, or 44 per cent, still own their first machines and used them for field work.

446, or 37 per cent, had replaced their old tractors with new ones, which were used for field work.

239, or 19 per cent, did not use tractors for field work. Seventy-one of the 239 still use their old tractors for belt work.

About one-half of the machines purchased in 1916 and 1917, one-third of those purchased in 1914 and 1915, and one-fourth of those purchased in 1913 or earlier were still being used for field

work. Of 808 men who purchased their machines in 1916 and 1917—

410 still owned the same machines and used them for field work; 25 of them had purchased other tractors and used both for field work.

275 had replaced their old tractors with new ones which they used for field work; of these, 227 had sold their first tractors and 48 still had them; 13 of the latter used their old tractors for belt work only and 35 did not use them at all.

123 did not use tractors for field work; of these, 67 had disposed of their tractors, 35 used them for belt work only, and 21 still owned the old tractors but used them for neither field nor belt work.

Six-Year-Old Tractors At Work.

Of 331 men who purchased their machines in 1914 and 1915—

105 still owned and used them for field work in 1920; of this number, 105 had purchased other tractors and used both for field work.

133 had replaced their old tractors with new ones which they used for field work; of these, 99 had disposed of their first tractors and 34 still had them; of the latter group, 10 used their old tractors for belt work only and 24 did not use them at all.

93 did not use tractors for field work, 46 of whom had disposed of their tractors; 28 used them for belt work only, while 19 still had their tractors but used them for neither field nor belt work.

Of 80 men who purchased their machines in 1911, 1912, and 1913—

19 still owned the same machines and used them for field work; 1 of the 19 had purchased another tractor and used both for field work.

38 had replaced their first tractors with others which they used for field work; 25 of this group had sold their first tractors and 13 still had them; of these, 8 used their old tractors for belt work only and 5 did not use them at all.

23 did not use tractors for field work, 5 had disposed of their old tractors, 8 used them for belt work only, 10 still owned their tractors but used them for neither field nor belt work.

Thirty-eight, nearly half, of these men who began using tractors in 1913 or earlier are located in the Dakotas.

Trade in Old Tractors for New Ones.

In all, 685 men were no longer using their first tractors for field work; 469 had disposed of their tractors and 216 still owned them; 102 of the latter used the tractors for belt work in 1920 and 114 did not use them at all. Thirty-five per cent of the men who had disposed of their tractors sold them for cash and 65 per cent had disposed of them in trade, usually for new tractors.

The men who had disposed of their early machines paid on the average $990 for them, kept them a little over three years, and received $490 for them. Thus the average annual depreciation was a little more than $150.

There was no great difference in the length of time the men in the different States kept their early machines. The Dakota farmers received an average of $665 for the old machines which they had sold, considerably more than was received for old machines in any of the other States. This greater sale value was due, in part at least, to the fact that most of the early tractors in North Dakota and South Dakota were larger and more expensive than in the other States.

The tractor operator has evidently been partly responsible for the success or failure of these early tractors. Only 11 per cent of the early tractors which were still in use for field work in 1920 had been operated by hired help and only 12 per cent of the men who had replaced their first tractors with others depended on hired help, while 25 per cent of the men who had discontinued the use of tractors for field work had allowed the machines to be operated by hired help.

Results Depend Largely Upon Operators.

At the time of making their early reports, 84 per cent of these men believed their tractors would be profitable investments. Eighty-two per cent of those who used their first machines for field work in 1920 still considered that they were profitable, and 83 per cent stated that they intended to buy others when the ones they were then using wore out. Sixty per cent of those who have sold their first tractors and purchased others, and only 32 per cent of those who have sold their first tractors and have not purchased others, consider that their early machines were profitable investments. The men who had purchased new tractors had owned them about one and one-half years, on the average, and estimated that they would give about five and one-half more years of satisfactory service. Eighty-nine per cent believed that the new tractors would be profitable.

On the average, the men who were still using their early tractors for field work had owned them about four and one-half years; in this time they had spent $187 for repairs—about $40 per year—and they estimated that the machines would last five years more.

In 1917 and 1918, when these men gave the first reports of their experience, they had increased their acreage by an average of 14 per cent since the purchase of their tractors and at the same time had reduced the number of work stock kept by about 20 per cent. There had been little further change either in acreage or number of work stock on the farms where tractors were still in use in 1920.

Many Changes in Size.

In many cases the first tractors evidently were not the sizes best suited to the needs of these farmers. In all, 512 of the men reporting had bought their

Where Birds Spend Their Winters of Interest to Naturalists and Sportsmen

Investigations on the status of birds in their winter homes have been undertaken by the Bureau of Biological Survey, United States Department of Agriculture, in connection with administration of the treaty with Great Britain for the protection of birds migrating between the United States and Canada. That many of these birds winter in South America may be surprising to some, but it is known to be the case. Valuable material collected by Dr. Alexander Wetmore, of the survey, who recently returned after a year's absence in Argentina, Paraguay, and Uruguay, during which he studied the status of our migratory birds in those countries, will throw much light on the subject.

Many Birds Visit South America.

Among our more familiar birds that Dr. Wetmore observed in South America was the well-known barn swallow, that ranges with flocks of native swallows in open country. Many of the species encountered were shore birds found through the marshy pampas or on the coastal mud flats; some were found to winter well north in the Tropics and others to travel as far south as the Straits of Magellan. Among our game birds seen in Argentina and elsewhere were the golden plover and pectoral sandpiper.

That Federal protection of migratory birds is proving a success is recognized by the majority of sportsmen and nature lovers. Ducks, geese, and other migratory game birds have not only increased in number, but have reappeared in sections where they had not been seen for many years. Recently there have been a number of inquiries as to the possibility of arranging treaties with countries in Latin America for protecting migratory birds, similar to that with Great Britain. One of the objects of Dr. Wetmore's trip was to secure information as to the feasibility of such action.

second tractors, either to replace or supplement their first ones. Of these, 268, or 52 per cent, purchased the same size as they first owned; 126 purchased larger sizes and 118 purchased smaller sizes. Four hundred and twenty-nine of the men who were still using their first tractors stated that they intend to buy others when their first ones are worn out, and also gave the size which they intend to buy. Of these, 248, or 58 per cent, intend to buy the tractors of the same size as their first ones, while 103 intend to buy larger sizes, and the remaining 78 intend to buy smaller sizes.

ADDITION OF 42,200 ACRES TO EASTERN NATIONAL FORESTS

The purchase of 42,221 acres of land in 101 different tracts in the White Mountains, Southern Appalachians, and Arkansas, at an average price of $4 an acre, was authorized by the National Forest Reservation Commission on June 15. The location of the tracts is as follows:

State.	County.	Number of tracts.	Total Area.	Purchase price per acre.
			Acres.	
Alabama	Lawrence, Winston.	19	2,713	$4.84
Arkansas	Polk, Scott, Montgomery, Newton, Pope.	28	4,561	4.22
Georgia	Union, Lumpkin, and Rabun.	6	874	3.97
New Hampshire	Carroll	4	1,673	5.74
North Carolina	Caldwell and Macon.	13	4,324	5.81
Tennessee	Monroe, Greene, and Polk.	6	2,417	5.26
Virginia	Augusta, Rockbridge, Botetourt, Amherst, Wythe, and Smyth.	24	25,595	3.39
West Virginia	Tucker	1	64	5.00
Total		101	42,221	

The commission also authorized the examination of lands in Kentucky with a view to determining their suitability for the establishment of a National Forest in that State. Investigation will be made of lands outside the Appalachians with the object of ascertaining the protection afforded the flow of navigable streams by forest cover.

A temporary field station of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, has again been opened at Caldwell, Idaho, August 1 to assist potato growers in marketing their crops. Mr. Homer A. Harris is in charge of the office, and market reports on loadings, shipments, and prices at shipping points and in the principal distributing markets will be issued daily until September 15, when the office will then be moved to Idaho Falls.

INVESTIGATIONS IN FIXATION OF NITROGEN TO CONTINUE

Transferred from War Department to Department of Agriculture.

Work of Fixed Nitrogen Research Laboratory Will Be Mainly Along Agricultural and Chemical Lines—Valuable to Farmers and Fertilizer Trade.

By an order of the President, the Fixed Nitrogen Research Laboratory in Washington, D. C., established for war purposes in 1919, has been transferred from the War Department to the Department of Agriculture. This means that the research work to discover methods of fixing nitrogen from the air and making it available for use will be continued, and the results will be available for agricultural and chemical purposes.

Work Available for War Purposes.

The War Department, in making the transfer, included a provision, which was approved by the President, that the work of the laboratories should be available for the War Department at such times as national defense should make it imperative. A personnel of 110 to 120, including 50 of the best trained experts in the world in nitrogen fixation and the application of the product, is transferred from the War Department to the Department of Agriculture, with the assurance that this carefully selected group of workers will be kept together instead of drifting into private occupation.

Dr. R. C. Tolman, director of fixed nitrogen research, will remain in the same position. The method of control of research work under the Department of Agriculture has not been worked out in detail. The sum of $500,000 made available from funds in the control of the President is transferred for the maintenance of the work for the next two years.

The laboratory is located on the grounds of the American University on Massachusetts Avenue, Washington, making use of buildings and equipment formerly used by the research division of the Chemical Warfare Service. The largest building in use is loaned by the American University.

Started Over Two Years Ago.

The Fixed Nitrogen Research Laboratory was founded by an order of the Secretary of War dated March 29, 1919, and has been operated with a budget of $300,000 a year, the funds being provided under the national defense act of June 3, 1916, which authorized the President of the United States to "cause to be made such investigations as in his judgment are necessary to determine the best, cheapest, and most available means for the production of nitrates and other products for munitions of war and useful in the manufacture of fertilizers and other useful products, by water power or any other power, as in his judgment is the best and cheapest to use."

The main work of the laboratory has been to study the fixation of nitrogen by the cyanamide, the Haber, and the arc processes, and to study the methods of transforming the various forms of nitrogen containing products so as to make them most available for military, agricultural, or industrial uses.

The cyanamide process is the one designed to be used at the Muscle Shoals plant in Alabama, and the Haber process in the smaller Sheffield plant in the same State, while the arc process is regarded as one of the most important processes of nitrogen fixation from a military point of view, since it can be most rapidly installed in case of war and since it provides nitrogen at once in the nitrate form without the necessity of any oxidation from the ammonia form. The Government owns no arc plant, and for this reason less attention has so far been given to this process than to the others.

The cyanamide process is one of the best known and best established methods of fixing nitrogen, and the laboratory has completed more work in connection with this process than with the other methods of nitrogen fixation. The cyanimide process is at present the only process by which nitrogen can be fixed in America in case of emergency. The work on cyanamide was originally undertaken at the specific direction of the fixed nitrogen administrator, Arthur Graham Glasgow, because of the Government ownership of the great Muscle Shoals plant, which is expected to produce 220,000 tons of cyanamide per annum.

Different Processes Investigated.

The main purpose of this work has been to study cyanamide and its various possible transformation products from the point of view of their utility in agriculture, explosives, and the arts. The laboratory has already collected an enormous amount of information as to the various compounds which can be prepared from this material. A large amount of further information is now coming through in the form of additional reports, and a number of important experimental investigations are being brought to a close. Experts in the Washington laboratory believe that the cyanamide process will remain an important

(*Continued on page 8.*)

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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STARTS INVESTIGATION OF WHEAT STANDARDS

When Secretary Wallace refused to make changes in the Federal grades for spring wheat after a hearing on this subject last April, he stated that his action was based on the fact that not enough evidence had been presented to justify such changes. At that time he said that the criticism of the present grades warranted a thoroughgoing investigation, especially as to their practical application at country buying points. He said that such an investigation would be made during the coming wheat-marketing season, and that if changes were justified they would be made well in advance of the marketing season next year.

This matter has had the attention of the department and several conferences have been held with a view to developing plans for making the study as soon as the new wheat crop begins to move to market. At a conference of officials of the department, Members of Congress, and others in the Secretary's office, July 11, it was agreed that the department should send a practical miller and a practical economist, with experienced assistants, to cooperate with others in studying the problems connected with grading, especially in the Northwest.

A grain specialist will study the grades to see how they can be made to indicate the milling value, both in respect to quality and quantity of flour and the cost of producing flour from different grades. Dockage will also be studied. An economist will investigate the applicability of the grades at the local elevator and follow the wheat through the several transactions and processes to the mill. Practical men will be called in at all stages of the investigation. These studies will be made with a view to showing how the grades can be so arranged as to reflect the milling values to the grower.

Among those who have attended the conferences were Secretary Wallace, Assistant Secretary Ball, Dr. H. C. Taylor, L. M. Estabrook, Dr. W. A. Taylor, C. R. Ball, H. J. Besley, Prof. John Lee Coulter of the West Virginia Experiment Station and formerly of Minnesota, Senators Ladd, Jones and Kellogg, and Representatives Haugen, Anderson, McLaughlin, Tincher, Steenerson, Ten Eyck, Jones, Clague, and Sinclair.

COUNTRY'S FUR INDUSTRY ASSUMING LARGE PROPORTIONS

The United States leads the world in the production and use of furs. Great industries, which involve large amounts of capital and employ thousands of persons, have been built up and established in this country. In 1920 the sale of furs amounted to practically $100,000,000, and, according to the Biological Survey, United States Department of Agriculture, the gross business in connection with the import, export, and handling of domestic furs in New York City alone during 1919 amounted to $375,000,000.

During the time that these great industries were developing, the heavy market demand for furs and the high prices prevailing stimulated activity on the part of trappers to such an extent that, especially in the past decade, there has been a marked decrease in the supply of wild fur-bearing animals. The recent depression in the fur market is thought to be a transient feature of readjustment attending a return of markets to normal conditions.

Several kinds of wild fur bearers have been successfully reared in captivity on fur farms. The largest investments at present are being made in connection with the rearing of silver-black foxes, and it is here that the greatest profits have been realized during recent years.

DISCOVER NEW FACTS ABOUT RUST OF GRAIN AND GRASSES

Investigations of the leaf rust of grains and grasses are being made by the United States Department of Agriculture in cooperation with the Purdue University Agricultural Experiment Station. These studies consist principally of experiments to determine the relationships of the leaf rust of wheat, rye, and barley, the determination of possible biologic forms of these rusts, the study of a wide range of plants as possible secondary hosts, and cultural studies of the leaf rust of wheat to determine what grasses may serve as hosts for this rust.

Extensive studies have been made in the greenhouse at La Fayette, Ind., where rust spores collected from numerous species of grasses have been sown on various plants which possibly may act as secondary hosts. The existence of biologic forms of leaf rust of wheat has been discovered, and it is now known that these forms have a wide range of grass hosts.

In addition to the greenhouse studies, more than 200 wheat varieties and selections were sown in Tennessee, Indiana, Illinois, and Wisconsin, and several varieties resistant to leaf rust are being grown at a number of stations in the Southeastern States. Progress is being made in the breeding of wheat for resistance to leaf rust, and it has been demonstrated that the high-yielding, hard red winter wheat, Kanred, which is resistant to stem rust, is also resistant to leaf rust.

ESTIMATES OF DOMESTIC WHEAT HARVEST LARGE; FOREIGN SMALL

The wheat-harvest season in the United States as it affects the world's supply is being watched this year as it has at no time since the signing of the armistice, say officials of the Bureau of Markets, United States Department of Agriculture. Estimates thus far indicate that this country will have a crop around 809,000,000 bushels, as compared with 787,000,000 bushels last year, which, it is thought, will make up somewhat for less encouraging reports from other parts of the wheat-producing world.

The Southern Hemisphere—Australia and Argentina—started the present calendar year with two good crops, which seemed to assure the importing countries of ample supplies for the remainder of the present crop year, which ends July 31. India began the season's wheat harvest in the Northern Hemisphere, completing cutting in May; and the outcome was, as had been forecast, a short crop. India is not only out of the exporting list for the next 12 months but may, and probably will, be an importer.

With the winter wheat prospects in the United States cut down 55,000,000 bushels to a total of 574,000,000, estimated in the July report of the Bureau of Markets and Crop Estimates, and the spring wheat conditions reduced by heat, drouth, and rust, the importers will apprehensively watch the harvest in every country until Canada's farthest north crop is finally secured.

Canada's wheat is threatened by drouth and rust.

Lower Ocean Freights on Farm Products; Ratio to Prices Relatively the Same

Ocean freight rates on wheat and cotton moving from north Atlantic ports of the United States to the United Kingdom were approximately 50 per cent lower on July 1, 1921, than on November 1, 1920, according to a statement compiled from data received by the United States Department of Agriculture from the United States Shipping Board. This decline corresponds substantially to the price declines of those commodities during the same period; so that the ratio between the freight rates and prices remains relatively the same.

Cotton Freights Nearly 5 Per Cent of Value.

The average price of cotton in New York for October, 1920, and for June, 1921, was $22.68 and $12 per 100 pounds, respectively. In the absence of figures showing the average ocean freight rate on cotton during those months, the rates in effect on November 1, 1920, and July 1, 1921, were used in this compilation. The ocean freight rate to the United Kingdom was $1.10 per 100 pounds on November 1, 1920, or 4.9 per cent of the value of the cotton as represented by the quotation on that date. On July 1, 1921, when the ocean freight rate was 52½ cents per 100 pounds, the ratio between the freight rate and the price was 4.4 per cent. In other words, the ratio between the freight rate and the price of cotton was one-half of 1 per cent less than on November 1, 1920.

On November 1, 1920, No. 2 Red Wheat was quoted in New York at $2.34¼ a bushel, and the ocean freight rate was 40 cents per 100 pounds, or at the rate of 24 cents a bushel, which represented 10.2 per cent of the value of the wheat. On July 1, 1921, with No. 2 Red Wheat selling at $1.47½ a bushel, the freight rate was 21 cents per 100 pounds—12.6 cents per bushel—or 8.5 per cent of the value of a bushel of wheat. Both the price of wheat and the freight rate may be said to represent a fair average for June.

Commodity.	Average, 1913.	Oct. 30, 1919.	Jan. 23, 1920.	Nov. 1, 1920.	July 1, 1921.
Wheat	$0.1024	$0.80	$0.40	$0.40	$0.21
Flour	.1572	1.00	1.00	.45	.26
Cotton[1]	.32	1.50	1.50	1.10	.52½
Butter	.....	1.00	1.00	1.25	1.00
Cheese	.....	1.25	1.25	1.00	.75
Tobacco	.....	2.00	2.00	1.50	1.00

[1] Gulf ports.

The decline in the rates and prices of other commodities was less marked. In the case of butter and cheese the wholesale prices have declined approximately 44 per cent since last November, while the ocean freight rates on these commodities have fallen only from 20 to 25 per cent.

While the cost of ocean transportation is an essential factor in the marketing of agricultural products in foreign countries, it is by no means as important a factor as is the cost of rail transportation to the seaboard.

For example, the export lake-and-rail freight rate on wheat from Duluth to New York is 28.8 cents per bushel, while the ocean freight rate from New York to Liverpool is 12.6 cents per bushel, making a combined rate of 41.4 cents per bushel, of which the lake-and-rail freight costs represent 69.6 per cent.

The export rail rate from Kansas City to Galveston is 27 cents a bushel and the ocean freight from Galveston to the United Kingdom is 15 cents a bushel, a total of 42 cents a bushel, of which the cost of the inland rail haul represents 64.3 per cent.

Lower Rates to Argentine Wheat Growers.

In this connection it is interesting to compare these rates with the rail and ocean freight rates to the United Kingdom from the wheat-producing centers of Argentina, where the rate for transporting 1,000 kilograms (2,204.6 pounds) of wheat a distance of 500 kilometers (310.6 miles) is $15.44 Argentine paper, or 12.2 cents a bushel, calculated on the basis of the prevailing rate of exchange.

The average rail haul in Argentina is 435 kilometers (261 miles). Argentine growers thus have an apparent advantage of about 14 cents a bushel over the interior sections of the United States in the cost of transporting their wheat to the seaboard. This advantage, however, is partly offset by increased ocean freight rates from Argentina to the United Kingdom, which at the present time are around 23 cents a bushel, making a combined rail and ocean rate of 35.2 cents a bushel for Argentine wheat.

AIRCRAFT COMPANY DOES VOLUNTARY FIRE-PATROL WORK

An airplane fire patrol in the Pikes Peak region is being carried on without cost to the Forest Service of the United States Department of Agriculture. A Colorado aircraft company has an agreement which calls for constant lookout for fires during regular trips, and special trips to locate smoke are made at the request of the Forest Service. The pilots, who are appointed special unpaid fire guards, are provided with maps and telephone directories of forest officers, and the airplanes bear on their wings, in neat letters, "Official Forest Service Patrol."

This patrol may cost the aircraft company a good deal, if many special flights are necessary. The company, however, does not expect to charge the expense to philanthropy; it believes that it can render this public service gratuitously and at the same time its planes will be known as the ones which do this special fire patrol work. There is no Army air field anywhere near this district with which the Forest Service can cooperate, as on the Pacific coast, for forest fire patrol, so it is of great advantage to the service to have this patrolling done voluntarily.

RESUME DISTRIBUTION OF DAILY LIVE-STOCK REPORTS

Urgent requests from subscribers has caused the Live Stock, Meats, and Wool Division of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, to resume the general distribution of the Daily Live Stock and Meat Trade Conditions Reports from its branch offices at Philadelphia, New York, and Boston beginning July 1. Earlier in the year, when funds were running low and there was need for reducing expenses, the circulation was curtailed to the extent of limiting daily reports only to subscribers within these three cities. Subscribers residing outside of these cities, however, continued to receive the weekly reviews. Discontinuance of the daily reports was promptly met by numerous protests from the subscribers who claimed the reports were essential in their business.

The arrangement by which the general distribution is resumed is said to be merely tentative, depending in large measure upon the money that will be available for the work, and will be made permanent only if funds permit. The information contained in the reports covers conditions in the wholesale meat trade at these three large eastern consuming centers and also brief summaries of live stock trade at important middle-western markets. The reports have a large circulation among producers and members of the trade.

The reduction in circulation, which confined the distribution of the reports to the so-called city lists, meant a dropping of 45 per cent of the subscribers by the New York office, 83 per cent by the Boston office, and 68 per cent by the Philadelphia office.

Produce Corn in Southern States Free From Weevils by Selection and Breeding

Opportunity for southern corn growers to protect themselves against weevil infestation next year by intelligent seed selection in the field is pointed out by experts of the United States Department of Agriculture. It has been found that in weevil-infested sections the ears with tips protruding from the shucks or with loose, open shucks, usually become infested, and often seriously damaged, before they can be safely stored, and that many of them after several months in storage are worthless.

Experiments have shown that shuck coverings extending well beyond the tips of the ears and closing tightly about the silks, if not opened by other means, will resist weevils successfully, both in field and in storage. The greatest handicap to shuck protection against weevils is the presence of ear worms, which usually enter the shuck covering through the silk channels, feeding as they go and making holes as they leave, through which weevils may enter. It has been found that when there is a long shuck extension the worms frequently cut from the silk channels before reaching the ear, and the longer the extension the more frequently this happens.

Opportunity for Corn Breeders.

The corn breeder in weevil-infested districts is urged to strive to produce a variety in which all the ears will be clothed with shucks that extend tightly beyond the tips of the ears. The shuck extension should be several inches long.

Select the best ears in the field, if possible, for next year's seed. Be sure these ears have long, tight shucks, so that your next crop will have better shuck protection. Select the ears from the individual stalks that show the best breeding, those that produce more and better than their competitors.

The harvesting should be done as soon as the corn is sufficiently dry. After harvesting, the ears should be sorted into two classes. This can be done rapidly with ordinary farm labor at a time when it is too wet or stormy for field work.

The first class should include all of the ears that apparently have weevil-proof shucks. These ears should be stored in their shucks until such time as they are needed.

The second class should include all ears with tips protruding beyond the shucks, with loose or open shucks, and any others that are probably infested with weevils. These ears require immediate attention to minimize the loss, as the weevils in them will continue to multiply except during the coldest part of the winter season. As the shucks of poorly covered ears are no protection, they should be removed. Already some of the ears may be partly consumed and contain adult insects, larvæ, and eggs. These should be kept separate and are best suited for poultry feed. All the ears showing slight infestation should be shelled and the grain cleaned to remove the live weevils. If the sheller has fans and riddles it may not be necessary to run the corn through a separate cleaner. If the sheller has no cleaning devices, a fanning mill will serve the purpose.

The shucking, shelling, and cleaning will dislodge many of the insects, and, so far as possible, these should be collected and burned. In many cases, to prevent further loss before the corn can be used or sold, it will only be necessary to put it in bags woven sufficiently close to prevent the weevils from pushing through from the outside. They will seldom cut through even the thinnest cotton bagging. It should be remembered, however, that though the bags prevent the weevils from entering they do not prevent the weevils already in the corn from continuing to breed and damage the grain.

Prevent the Weevils from Increasing.

If it is necessary to keep this infested bagged corn for a considerable time, the multiplication of the weevils within the sacks can be minimized by fumigation or by running the grain through a fanning mill occasionally.

The shelled corn must not be stored in large masses or it may heat during periods of high temperature. A slatted crib covered with ¼-inch mesh galvanized wire netting will give abundant ventilation and exclude rats and mice. With gastight storage bins the weevils in infested corn may be effectively destroyed with carbon disulphid.

SOURCE OF CHAULMOOGRA OIL FOUND IN FASTNESSES OF BURMA

(*Continued from page 1.*)

of whom have apparently been permanently cured.

Prof. Rock said that the news of these cures had had the result that persons who had previously concealed their disease came forward and acknowledged being leprosy victims in order to receive treatment. Realizing that world-wide circulation of the fact of these cures would result in a heavy demand for the very meager supply of *Taraktogenos Kurzii* seeds, certain interests in Hawaii arranged with Prof. Rock to obtain seeds from their native source for propagation. The first effort was made in 1919, while Prof. Rock was on his way to Java, re reforestation problems for the Hawaiian Sugar Planters' Experiment Station. Because of travel difficulties he was unable to penetrate to the actual source of supply at that time, but sent seeds of the Siamese species.

Last year he went to southeastern Asia as the representative of the United States Department of Agriculture. The expedition was largely a blind chase for the reason that nobody in the settled portions of Siam and Burma appeared to know exactly where the trees producing chaulmoogra oil were located. Small quantities of the seeds trickled out to civilization at intervals, sufficient to supply the small demand for this drug, as previous to the Hawaiian experiment it was not regarded as a cure, but rather as a palliative remedy, the remainder being sold in the native bazars, and this was about all that was known.

Starting on a Perilous Journey.

Prof. Rock made his start at Bangkok, the principal city of Siam, and journeyed north about 300 miles to the town of Chieng Mai. This trip was accomplished partly by railways. He camped in the forest northwest of Chieng Mai, especially in the mountain ranges of Doi Sootep and Doi Choin Chieng, where three species of chestnuts were encountered. From Chieng Mai to Roheng and thence a journey was taken by houseboat on the Meh Ping River, then across a range of hills lying between the Meh Ping and the Salwen Rivers to Moulmein, lower Burma.

On this journey he discovered many species of trees, some of them new to science. Among the collection brought back were 17 species of oak, some bearing edible acorns. Seeds of these were sent to the department. This region had been very little explored botanically, and the trip was accomplished with some difficulty. At a little jungle village called Thingannynon, one day's journey from the Siamese border, a tree was found greatly resembling *Taraktogenos Kurzii*, but, owing to the advanced season, no ripe fruit was obtainable. It is possible that it belonged to the species *Hydnocarpus*.

From Maulmein Prof. Rock went to Rangoon, Burma, by boat, and then made

a difficult journey of many days by different methods of travel to Mawlaik, on the upper Chindwin River. He had been told that he would find the *Taraktogenos Kurzii* trees here, but on arriving at Mawlaik he was informed that he must go five or six days into the country to Kyokta. At Kyokta the information was more definite, and another journey was taken to the hills back of Kyokta. Here the principal part of the seeds which he sent home were obtained.

Fruits Are Filled with Seeds.

The seeds are contained in a fruit the size of a large orange. They are closely packed and angular in appearance, due to mutual pressure. The fruit ripens in July and as Prof. Rock did not arrive in the respective locality until January it could not be collected, but nevertheless sufficient fresh seed was obtained. The natives will not go into the forests when the fruit is ripe because of bears, which prize the flesh of the fruit and infest the forests at those times. The seeds are left by the bears and are picked up by monkeys and porcupines, which eat considerable quantities. Some are washed into the streams and are eaten by fish. The nauseous quality of the oil content is indicated by the fact that natives refuse to eat the species of fish which devour *Taraktogenos Kurzii*, saying that it will make them sick.

Subsequently Prof. Rock sailed from Burma to Calcutta and penetrated the tiger country of Bengal and into Assam. In northeastern Assam he visited two forest reserves, the Dibun and Berjan, situated near Rangajora, a jungle village on the Dibun River, a tributary of the Grahumaputta. *Taraktogenos Kurzii* was also found there, but as scattered individuals, and no ripe fruit was seen. *Gynocardia odorata* was not uncommon, and although it does not produce the Chaulmoogra oil of commerce it was thought for over 100 years to have been the source of the oil. Seeds of the *Gynocardia* were collected in quantities for growing and experimental purposes, its fruiting season being in the winter months.

COOPERATE IN STANDARDIZING AND CROP ESTIMATING WORK

An agreement for conducting work in standardization and crop estimating on a cooperative basis has been entered into by the Bureau of Markets and Crop Estimates, United States Department of Agriculture, and the California State Department of Agriculture. The purpose of the standardization work is to bring about an improvement in the use of existing standards and to establish additional standards for fruits and vegetables as well as to coordinate the shipping-point inspection established in California, with the food-products inspection now conducted by the Federal bureau in central markets.

The object of the cooperative work relating to crop estimating will be to coordinate the State and Federal services and to develop intensively the crop and live stock service for the special benefit of the people of California and the general good of all interested in the agricultural industry.

An organization consisting of eight specialists and technical men is being formed to conduct the work. While headquarters for this work will be at Sacramento, branch offices will be opened and maintained in various parts of the State.

New Wireless Weather Bulletin Service to Be Furnished Aviators and Mariners

Two new wireless bulletin services are announced by the Weather Bureau of the United States Department of Agriculture, in cooperation with the Office of Communications of the Navy Department. The first will be a special bulletin containing surface weather observations from aerological stations maintained by the Navy, Army, and the Weather Bureau, and a summary of weather conditions, forecasts, and warnings. The bulletin is for the benefit of marine and aviation interests, but is designed especially to meet the needs of the latter. Since June 1, 1921, it has been sent broadcast from the naval radio station at Arlington, Va., each morning at 10.30 o'clock (75th meridian time), Sundays and holidays included. This service is in addition to the distribution now being made each night from the naval radio stations at Arlington, Va.; Key West, Fla.; Point Isabel, Tex.; Great Lakes, Ill.; and San Juan, P. R. Full details of this new service, including the code used, may be obtained by addressing the Chief of the United States Weather Bureau, Washington, D. C.

Since June 10, 1921, there has been also a systematic broadcasting of wind and weather forecasts, storm and hurricane warnings, and advices relating thereto, from naval stations on the south Atlantic and Gulf coasts, in the Caribbean Sea, and on the Great Lakes. This distribution is in the form of a localized service and supplemental to the general broadcasting of weather forecasts, warnings, and bulletins from the high-powered naval radio stations above mentioned. Whenever storm or hurricane warnings are issued in the forenoon, based on 8 a. m. observations, they will be broadcast at the same time as the wind and weather forecasts. When issued in the afternoon, based on special observations, they will be broadcast at the evening hours indicated.

Should Watch for Bulletins.

Vessel owners and others desiring to receive these reports should make every effort to obtain them on the regular schedules, as repetitions, except as indicated, will be made only in unusual circumstances. A circular, showing the naval radio stations which will transmit forecasts, the wave lengths employed by each station, the hours of distribution, etc., can be had upon application to the Chief of the United States Weather Bureau, Washington, D. C.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended July 20, 1921:

The Green-Bug or Spring Grain-Aphis. How to Prevent Its Periodical Outbreaks. Farmers' Bulletin 1217.

Soil Survey of Morgan County, Ala. (From F. O. Soils, 1918.)

Journal of Agricultural Research. (For sale only; 20 cents.) Vol. 21, No. 6.

Monthly Weather Review. Vol. 49, No. 4.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

A Half Billion Dollars' Worth of Farm Implements Manufactured Last Year

Gas tractors to the number of 203,000 with a total value of $193,000,000, more than 1,000,000 plows with a value of over $40,000,000, 225,000 farm wagons with a value of nearly $25,000,000, and 412,000 haying machines with a value of nearly $25,000,000 were manufactured in the United States during the year of 1920, according to detailed reports from 583 manufacturers summarized by Bureau of Public Roads, United States Department of Agriculture. The total value of implements manufactured was $537,000,000, and gas tractors constituted more than one-third of the total.

Gas Tractors Lead All Others.

The exact number and value of these and other classes of equipment manufactured of those sold in the United States and of those sold for export during the year are given in the accompanying table.

These figures are a summary of detailed reports which 583 manufacturers of tractors, farm implements, vehicles, and other farm operating equipment recently gave to the Division of Agricultural Engineering. Every manufacturer of farm equipment in the country was asked for a report of his activities, and while a few did not respond, it is certain that at least 99 per cent of the entire industry is represented in the figures above, and for most classes of equipment the information is practically complete.

The reports of a considerable number of firms covered fiscal years ended in the latter part of 1920 or the early part of 1921. The reports of such firms do not represent exactly their activities for the calendar year of 1920, but in every case the report covered an entire year, and it is believed that for all practical purposes the totals may be considered representative of the industry for the calendar year.

Manufacture and Sale of Farm Equipment in 1920.

	Number of firms.	Number manufactured.	Total value.	Number sold in United States.	Value domestic sales.	Number sold for export.	Value foreign sales.
Tractors	90	203,207	$193,563,000	162,988	$161,896,000	29,143	$30,850,000
Steam traction engines	15	1,766	4,661,000	1,401	3,903,000	121	370,000
Plows and listers	79	1,361,578	43,222,000	1,215,979	37,699,000	221,077	19,188,000
Tillage implements	92	.....	22,919,000	.....	20,636,000	.....	1,665,000
Planting machinery	84	472,248	20,097,000	498,853	21,612,000	16,822	1,458,000
Cultivating machinery	61	580,179	15,186,000	589,830	17,296,000	45,863	670,000
Haying machinery	29	411,556	24,703,000	338,112	19,667,000	94,011	6,230,000
Harvesting machinery	53	232,177	41,015,000	168,829	30,626,000	41,334	7,339,000
Machines for preparing crops for market or use	128	196,772	35,612,000	159,918	34,749,000	30,220	3,010,000
Horse-drawn vehicles	85	449,095	42,423,000	430,459	40,929,000	3,810	339,000
Other items	.....	.....	93,544,000	.....	82,429,000	.....	7,495,000
Total	583	.....	536,945,000	.....	471,442,000	.....	78,614,000

INVESTIGATIONS IN FIXATION OF NITROGEN TO CONTINUE

(*Continued from page 3.*)

method of fixing nitrogen for many years to come.

The Haber process, which under certain industrial conditions can displace the cyanamide process, has never been commercially operated outside of Germany. It has very great inherent difficulties connected with handling large quantities of inflammable gas at high pressures and high temperatures.

While the research laboratory was established under the War Department and with a particular view to working out explosives problems, the necessity of obtaining a nitrogen supply for agricultural purposes has been kept constantly in mind. Pot and field tests have been carried on in cooperation with the Bureau of Plant Industry of the Department of Agriculture and at the two Alabama plants, where 20 acres were given over to agricultural tests in 1920. The closest cooperation has been maintained between the two departments in this work, and Dr. R. O. E. Davis, scientist in charge of soil physical investigations of the Bureau of Soils, has been assigned for some time to cooperate with the work at the laboratory. Samples of fertilizer material for next year's tests at the plants are now being prepared by the laboratory.

Owing to the great variability in the results obtained in field tests, the experts are very anxious to continue the work for another year. The laboratory has already collected very important information as to the behavior of about 10 nitrogen-content substances in these field tests.

Many Uses for Nitrogen.

Nitrogen is one of the three great elements necessary in fertilizers for plants, the others being phosphoric acid and potash. Nitrogen forms an essential constitutent of explosives, of fertilizers, of dyestuffs, and many other substances used in the arts. In time of war the necessity of importing Chilean saltpeter, with its attendant uncertainties and tie-up of carrying capacity, was very serious. In times of peace the use of nitrogen in fertilizers is limited only by the supply and, if available, larger quantities would be used for increasing the food and other crops necessary for the country's welfare. It has been estimated by a high authority that the total loss of nitrogen from the arable land under cultivation in the United States is equivalent to 15,000,000 to 20,000,000 tons of ammonium sulphate a year, representing a material worth in the neighborhood of $1,000,000,000.

A peculiarity of nitrogen fixation research in contrast to many other lines of scientific investigation is the rigid secrecy maintained by each country because of the great advantage of a supply of fixed nitrogen in time of war. Thus, although Germany has carried on extensive research for years, the results have not been made available and it has been necessary for the American scientists to start from rather rudimentary beginnings and build. The laboratory and personnel are considered the best on this continent, and possibly in the world.

MANY OHIO FARMERS ENROLL IN BETTER-STOCK CAMPAIGN

Within the past few months more than 85 enrollments from 41 Ohio counties have been made in the better live-stock campaign. Some months ago the United States Department of Agriculture cooperated with the Ohio College of Agriculture in inaugurating a campaign to secure the enrollment of as many farmers and breeders as possible who agreed to use nothing but purebred sires of good quality on all their live stock, with a view toward the eventual elimination of all grade and scrub sires.

To comply with the conditions of this campaign the applicant for enrollment agrees to use none but purebred sires, and signs an application blank on which his stock is listed. This application is then signed by the county agent or two other persons in the county. The applications are collected by the State college and sent to the department at Washington, where an appropriate certificate is issued to the applicant.

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MORE MARINE OBSERVATIONS NEEDED TO BENEFIT SHIPS

Inform Vessels and Shipowners of Probable Movement of Marked Disturbances.

Masters of Freight Vessels May Choose Most Favorable Route Between Ports By Studying Pilot Charts—Several Days Warnings of Approaching Hurricanes.

With the expansion of American shipping since the end of the war the need for the marine meterological service of the Weather Bureau of the United States Department of Agriculture has greatly increased. This service, which is based on the observations of ships with regard to the conditions of air and sea encountered in each voyage helps both vessels and ship owners. It distributes information on pilot charts in cooperating with the hydrographic office as to the probable movements of any marked disturbances, and also as to the average conditions in various waters. Masters of freight vessels are enabled, by study of the pilot charts, to choose the most favorable route between ports. Special cargoes sometimes require special conditions, which can only be ascertained through such an agency as the Marine Service of the Weather Bureau.

Special Conditions Sometimes Required.

For example, a vessel loaded with asphalt started from Trinidad for the British Isles, by way of Newport News. It was necessary to keep the cargo at the exact temperature of 100° F. by means of steam from the boilers. The question arose whether it would be better to take the direct course from the Virginia Capes to Liverpool or to take a longer, more southerly route which would be higher in temperature so that consequently less steam would be required to maintain the asphalt at 100° F. The Weather Bureau furnished charts showing the normal air and water temperatures on a large portion of the North Atlantic Ocean, from which the most economical course could be laid out.

In the Gulf of Mexico, West India hurricanes are prevalent. The reports as to barometric pressure and wind velocity received by cable from land observers or by wireless from vessels in the Gulf and neighboring waters are recorded on maps from day to day, and storm warnings are sent out as the forecasters follow the course of ominous changes. When one of these storms is in process these weather maps will show after three or four days of increasing high winds and low pressure, a fringe of reports from vessels which have remained in or moved to points of safety out of the path of the storm.

Help from Leading Marine Nations.

Although about half the weather observations are received from American ships, many other nationalities are represented in the reports now reaching the Marine Meteorological Service. British ships report to our Weather Bureau with greater regularity than any others. In 1920 there were reports from 536 British vessels, a difference of only 2 per cent from the preceding year, while 992 of our own ships represented an increase of 68 per cent in active cooperation. In the same year 152 Dutch ships and 131 Japanese ships reported. The remainder of the observations were divided chiefly among French, Italian, Norwegian, Danish, Spanish, Belgian, and Swedish vessels, although ships from several South American countries reported once or twice, and one vessel each from China, Cuba, Germany, Greece, Iceland, Mexico, and Peru.

Ship owners should bear in mind that in order to receive the greatest benefits from observations it is necessary to have as many vessels reporting as possible. The prewar number of reports was far from adequate, and so far only a small proportion of the vessels recently commissioned have begun to furnish the bureau with observations. It is hoped that ship owners and masters will realize how much they are helping themselves as well as others by this cooperation.

HEAVY REDUCTION IN ACREAGE OF COTTON, RICE, AND TOBACCO

Increased Planting of Staple Food and Feed Crops Offset More Than Half of Loss.

Unsatisfactory Prices for Last Year's Crops Resulting From Financial Deflation Cause of Decreased Plantings—Much Land Gone Back to Pasture or Left Idle.

The Cotton Belt has this year recorded an unprecedented change in the ratios of the acreage devoted to leading crops. A change of 5 per cent in the country-wide acreage of a major crop is unusual, 10 per cent is rare, and 15 per cent is unknown except under extraordinary circumstances, such as arose during the war, or in the case of fall-sown grains when severe winter killing may result in extreme changes.

Cotton Acreage Cut 28 Per Cent.

The 10 leading cotton States, North Carolina, South Carolina, Georgia, Alabama, Tennessee, Mississippi, Louisiana, Texas, Oklahoma, and Arkansas, have cut their cotton 10,194,000 acres, or 28 per cent, from last year, according to figures compiled by the Bureau of Markets and Crop Estimates, United States Department of Agriculture. In addition they reduced rice 450,000 acres, or 39 per cent, and tobacco 262,000 acres, or 32 per cent, a total reduction for these three crops of 10,906,000 acres. These reductions, which were due to the unsatisfactory prices for last year's crops resulting from financial deflation, coupled with heavy stocks and lessened buying, are partly offset by increases in the acreages of staple food and feed crops in these States.

Corn shows a gain of 4,521,000 acres, or 13 per cent; wheat 607,000 acres, or 10 per cent; oats 740,000 acres, or 13 per cent; hay 413,000 acres, or 5 per cent; sorghum and cane 79,000 acres, or 10 per cent; and potatoes 123,000 acres, or 10 per cent; a total increase in these six

crops of 6,483,000 acres. Further offsets to the remaining difference of 4,423,000 acres exist in increased plantings of cowpeas, soy beans, velvet beans, and other less important crops. Alabama alone reported increased plantings of 834,000 acres of the three crops named, but these are largely planted in with corn and are, therefore, included in the acreage of that crop.

Cultivate More Land Than Before War.

The larger part of the 4,423,000 acres unaccounted for has gone back into pasture or is left idle. The land in cultivation during the past few years has been considerably in excess of the plantings in the prewar period, the area under cultivation in the United States in 1920 having been about 10 per cent greater than the average acreage tilled for the years 1910–1914. The net reduction in the cotton States still leaves in cultivation a larger acreage than before the war.

HURRICANES FROM WEST INDIES APPEAR EARLY THIS SEASON

The early occurrence of West India hurricanes this year should occasion no undue alarm on the part of the public, according to the Weather Bureau of the United States Department of Agriculture. Referring to the recent storms in the Caribbean Sea and Gulf of Mexico, officials of the bureau state that although it is unusual to experience hurricanes in the month of June the records of the bureau do not show that early storms of this character signify an increase in activity in the later months of the hurricane season.

A record of all the West India hurricanes that have been reported since the first voyage of Columbus is on file in the Marine Division of the Weather Bureau and contains a great deal of interesting, if tragic, information. From this record it appears that hurricanes have occurred in June in only eight years during the past century. Only one of these, 1886, was marked by a greater than average number of storms for the remaining months.

Wool has had a spectacular ascent and descent in price at the farm and range during the last seven years, as shown by reports to the Bureau of Markets and Crop Estimates, United States Department of Agriculture. From 15.7 cents a pound in January, 1914, the price rose with no important break to 60 cents in March and April, 1918, followed by decline to 50.3 cents in May, 1920, and a rapid slump to 15.4 cents in June, 1921.

VALUE OF EXPORTABLE SURPLUS OF FARM PRODUCTS INCREASES

For 16 Years Domestic Consumption Increased Faster Than Agricultural Production.

World War Stimulates Farmers to Nearly One-Third Greater Production—Animal Products More Than Double in Value, Crops Show Small Gain.

A diminishing fraction of farm products was available for export after satisfying the needs and demands of the people in this country during the 16 years before the World War. Domestic consumption of agricultural products was increasing faster than agricultural production.

Exports Fell Off One-Third.

From the point of view of value of agricultural exports and production, if the ratio between the two be regarded as 100 in the average for the years 1898–1902, the ratio fell to 84.1 in 1903–1907 and to 65.5 in 1908–1913. The exported fraction lost more than one-third in a period of time that must appear to be brief when compared with such a large relative loss.

Farmers, however, had great power of production in reserve. The war came on and more of their products was needed. The ratio of value of agricultural exports to production was down to 65.5 compared with 100 not many years before. During the war and to 1919, the ratio rose to 85.0. The farmers were not only providing for a huge population of 100,000,000 and more that had increased by 11 per cent. since 1900, but they increased the ratio of the value of their exports to that of their production by nearly one-third, and they did this with surprising quickness. Detailed analysis of the subject has been made by the Bureau of Markets and Crop Estimates, United States Department of Agriculture.

Greatest Change in Animal Products.

Animal products had a greater resiliency than crops had in the rebound of the exported fraction of the production in the war and postwar period, 1914–1919. For each group, 100 is taken as the base line of the fraction for 1898–1902, and the fraction for exports of animal products sank to 41.2 in 1908–1913, or much lower than the fraction for crops did, 75.6. That is to say, the value of the exports of animal products lost three-fifths of its fraction of the value of the production of the same class, while the crops lost only one-quarter. In response to the war situation, the export fraction of animal products gained by as much as 113 per cent, while crops gained only 9 per cent. The strong decline of agricultural exports in relation to production since 1898–1902 was arrested by the war.

FIGHT AGAINST APPLE PESTS SHOWN IN MOVING PICTURES

Many of the insects and fungi that prey upon deciduous fruits in American orchards are exposed to view in "King Apple's Enemies," a new one-reel motion picture recently released by the United States Department of Agriculture. The picture will be circulated through the department's system of film distribution, in which preference is given to agricultural extension and field workers, but which also provides as far as possible for the requests of other users of educational films. Copies may be bought for about $40 each by authorized institutions.

The picture, for which the bureaus of Entomology and Plant Industry are the authorities, shows scenes in beautiful apple orchards and then tells of the mobilization of the foes of the "king of fruits." How the foes are repelled is depicted when the machine guns and heavy artillery—various types of spraying and dusting machinery—move into action. Then the domain of King Apple, cleared of its enemies, comes into view.

"King Apple's Enemies" is one of nearly 150 subjects that have been pictured in the department's "movies," and which are being used throughout the country.

ENORMOUS TONNAGE HAULED OVER COUNTRY ROADS

The necessity of keeping country roads in good condition is shown by a report recently compiled by the Bureau of Markets and Crop Estimates, United States Department of Agriculture, showing the extent to which they are used in hauling farm products to market. According to the report, which shows the tonnage of 11 products hauled on country roads, giving the yearly average for the period from 1915 to 1919, there were 27 tons of these 11 crops hauled for every 100 acres of land. The average tonnage of the 11 crops hauled on country roads each year for the period mentioned amounted to 86,560,000 tons. The 11 crops referred to in the report are corn, wheat, oats, barley, rye, rice, flaxseed, cotton (including seed), tobacco, potatoes, and cultivated hay.

Seek More Wool and Mutton in Sheep For the Range Country by Cross Breeding

Sheep breeders, ranchmen, and animal husbandmen from six or eight States went to the United States Sheep Experiment Station near Dubois, Idaho, this year for the annual shearing. Keen interest attaches to the work done at this station, especially by those who are alive to the importance of producing, if possible, a breed that shall combine weight in mutton and excellence in fleece, with special reference to market demands for fine or coarse grades of wool. In the shearing this year, just reported to the Department of Agriculture, the Rambouillets scored highest. The report shows these results:

Average Weight of Wool per Sheep

Rambouillets	11.14 lbs.
Columbias	10.85 "
Corriedales	10.08 "
Corriedale grades	10.00 "

The station at Dubois was established by the Bureau of Animal Industry in 1917 to conduct experiments with which it was hoped to solve some of the big problems in range sheep business. With only a little more than three years' experience the specialists do not consider the results sufficiently conclusive to warrant definite assertion in favor of or against particular range practice, but the work has attracted the attention of sheepmen everywhere, and is expected to become increasingly important as the experiments develop.

"It is quite generally agreed," said one of the sheep husbandmen, "that for the main part of the range sheep country of the Northwestern States the type of ewes obtained in the first cross between the long wools and the fine wools is a very desirable stock ewe. We appreciate the fact that fine wool rams were most popular in 1919, and that this was due in part to the high price of fine wool. Even should fine wool continue to sell above coarser grades, which is doubtful, we still could not afford to neglect the lamb side of the business that has been the cause of such large use of crossbred stock."

Sheepmen concerned in the business of producing sheep that shall combine mutton and the right kind of fleece watch with interest the development of the Corriedale grades and the Columbias. The Corriedale was imported from New Zealand in 1915 by the Bureau of Animal Industry for this work. The Columbia is the Lincoln and Rambouillet cross interbred.

MORE COMPLETE INSPECTION OF FOOD IN PENNSYLVANIA

Arrangements for making the food products inspection service of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, more available to interested parties at Scranton, Wilkes-Barre, Harrisburg, and York, Pa., have been completed by the Bureau of Markets of the State of Pennsylvania and the Federal department. This arrangement has been made possible by a cooperative agreement between the Federal and State bureaus under which the agents of the State are trained by Federal inspectors.

At Scranton, Wilkes-Barre, Harrisburg, and York cooperative employees will issue Federal certificates on products which have moved in interstate commerce and State certificates on products which have moved in intrastate commerce. State inspectors who have been trained by the Federal inspection service will issue State certificates on all inspections made by them at Allentown, Erie, and Lancaster.

DEFINITE PROJECTS PLANNED FOR COOPERATIVE STATE WORK

The Bureau of Markets and Crop Estimates of the United States Department of Agriculture maintains a separate division in its organization to handle its cooperation with the various States. With the consolidation of the administration of the Office of Farm Management under the chief of this bureau, it is planned to strengthen the cooperative relations with the State institutions. It is desired that the work undertaken by State and Federal workers will be based on definite projects as has been done for the past two years in the Office of Farm Management.

Research work in farm management, cost of production and cost of marketing, marketing methods and practices, etc., will be undertaken cooperatively with the State colleges and experiment stations whenever satisfactory arrangements can be made to work together. Based on information gained from these investigations the educational work will be carried on in cooperation with the extension service of the State colleges. The service work, which covers in a broad way the market news and the inspection work of the bureau, will usually be with the State Departments of Agriculture and the State Bureaus of Markets, conforming in this regard to the division of labor agreed upon in the State.

WISCONSIN COOPERATES IN FIXING TOBACCO GRADES

In line with its plans for drawing up Federal grades for tobacco, the Bureau of Markets and Crop Estimates of the United States Department of Agriculture has reached an agreement with the State of Wisconsin providing for the employment of an investigator who will study locally-grown tobacco, with a view to its standardization. Similar agreements were recently made with the States of Kentucky, North Carolina, and Pennsylvania, where the work is now going ahead satisfactorily.

In all cases the expenses of the investigator will be paid by the States in which the work will be conducted, and the information gathered will be correlated by the Bureau of Markets and Crop Estimates for use as the basis for the proposed Federal grades. The work will finally cover all of the principal types of tobacco grown in the United States and is expected to lead to the establishment of standard grades for practically every type.

Under the present trade conditions practically all of the big tobacco buyers and manufacturers have their own private schedule of grades, running as high as 45 grades in some types. It is possible that under the proposed system of Federal grading there will be a much smaller number of grades, depending upon the type of tobacco.

The investigations will cover a large field and consideration will be given to all factors of commercial importance. The principal qualities of tobacco, such as color, texture, elasticity, body, toughness, flavor, burn, ripeness, soundness, and the size and shape of the leaf, will be the basis upon which grades will be established. The importance of each of these qualities in the grade specifications will vary greatly in the different types of tobacco.

It is probable that one of the first definite steps toward establishing a uniform system of tobacco grades will be to establish a standard for expressing tobacco lengths. This alone would be of great service to the trade and especially in the cigar leaf tobacco sections, where there is more or less confusion at the present time as to what is meant by the different lengths now in use in the trade.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

PROF. WARREN, OF CORNELL, TO SERVE AS SPECIAL ADVISOR

Prof. G. F. Warren, of Cornell University, has been especially requested by Secretary Wallace to serve as Consulting Specialist to the chief of the Bureau of Markets and Crop Estimates during the reorganization and consolidation of the bureau. Prof. Warren has accepted the position and has been granted leave of absence from Cornell until February 1, 1922. He will enter upon his duties at an early date. In studying the reorganization he will give special attention to the division of the bureau which will deal with the agricultural competition and demand in foreign countries. Prof. Warren, who is one of the leading agricultural economists in the United States, is the author of a number of books on agricultural subjects. He has been connected with Cornell University for a number of years and has served as professor of Agricultural Economics and Farm Management since 1911.

TRANSMIT 3,000,000 CODE WORDS ANNUALLY IN WEATHER BUREAU

Approximately 170 station reports, including their reciprocal distribution over 21 circuits, represent the transmission by the Weather Bureau of the United States Department of Agriculture of 4,500 reports twice daily, totaling more than 3,000,000 code words annually. The operation of this system in conjunction with the dispatch of a limited number of special messages each day places in the hands of the public in each section of the country full knowledge of the weather conditions over practically the entire United States and adjoining territory at a comparatively small cost. The messages are short, but by reason of the code words give detailed weather reports and forecasts. They are transmitted without interference with the public service—an important consideration in view of the strain imposed upon telegraph and telephone systems by commercial and private interests.

TEXAS GROWERS BENEFIT THROUGH POOLING COTTON

How demonstration work in cooperative cotton marketing is aiding farmers during the current season is illustrated by the story of a pool formed in Texas, as reported by the Bureau of Markets and Crop Estimates of the United States Department of Agriculture.

Three hundred bales of cotton were placed in this pool. Individually the growers had been offered from 3 to 7 cents a pound for the cotton on their local market. The entire lot was classed by representatives of the Federal bureau and grade cards issued to the owners. The samples were then forwarded to Dallas and the cotton trade invited to bid. The lot was sold at 10.25 cents a pound average.

On the classification made by the Bureau's representative the pool averaged 75 points off Middling. The Middling spot price at Dallas on the day of the sale was 10.35 cents. The growers' accounts were settled on the basis of the grade cards issued for the individual bales, using the Dallas differences for the day.

CONSIDER EXTENSION OF THE CITRUS CANKER QUARANTINE

Additional information as to the citrus canker infestation in the Northern Territory of Australia is being sought by the Federal Horticultural Board, United States Department of Agriculture, before taking action on the proposal to place a ban on the importation of citrus fruits from Australia, Tasmania, and New Zealand to prevent the introduction of the disease into this country. At a recent hearing by the board, D. B. Edwards, of New York, official secretary of the Commonwealth of Australia, assured the board that the disease was now under control in the northern territory and that his Government was prepared to certify shipments of citrus fruit. He promised to supply further information showing that there was no necessity for the quarantine. With the addition of Australia, Tasmania, and New Zealand, the quarantine would be complete against India, Siam, Indo-China, China, the Malayan Archipelago, the Philippines, Oceania, Japan, Formosa and the other islands adjacent to Japan, and the Union of South Africa. All citrus fruit from these places are excluded except oranges of the Mandarin class, which are entered under permit.

A widening of the quarantine was proposed as a safeguard for the citrus groves in this country. Although practically no citrus fruit from the northern territory comes to this country, it was thought that the disease might be brought here indirectly in other shipments.

PUT CORN BORER QUARANTINE ON PRODUCTS FROM ONTARIO

A revision of Quarantine No. 41, designed to make more effective its measures against the importation of the European Corn Borer, and other dangerous plant pests into this country was announced recently by Secretary of Agriculture to become effective July 21, 1921.

The primary object of the revision is to guard against the entry of the corn borer from Canada through the shipment of celery, green beans in the pod, beets with tops, spinach, rhubarb, oat or rye straw as such or when used as packing; cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, hollyhock; and cut flowers or entire plants of gladiolus and dahlia, except the bulbs thereof, without stems. It extends to importations of these plants and plant products from Canada the same restrictions at present imposed on the interstate movement of these articles under the domestic corn borer quarantine.

Until further notice the restrictions apply only to the Province of Ontario, the only locality in Canada known at present to be infested with this destructive insect pest. Thus far the domestic quarantine has been successful in holding the borer in check and confining it to sections of New York and several New England States, where it was originally discovered in this country.

Sugar-cane acreage is increasing in all States where the cane is used mostly for making sirup, that is outside of Louisiana. In that State the cane area in 1921 is 288,100 acres, or less than the 303,000 acres of 1918, although greater than the cane area of 275,000 acres in 1919 and 268,000 acres in 1920, according to estimates by the Bureau of Markets and Crop Estimates, United States Department of Agriculture.

State of Alabama Released From Mexican Bean-Beetle Quarantine

The release of the State of Alabama from quarantine on account of the Mexican bean beetle, a very destructive crop pest, was announced recently by the Federal Horticultural Board of the United States Department of Agriculture. The order signed by Secretary Wallace became effective July 23. This action was decided upon on account of recent developments in the scouting campaign against the beetle in the South, which showed a much greater present distribution than was estimated at the end of last season.

Found to Infest Large Area.

At the time the quarantine order was promulgated, the infested area was believed to be confined to 13 counties in Alabama, and to cover an area of about 3,500 square miles. Scouting during the present summer shows that the beetle is present in injurious numbers over about 10,000 square miles in the States of Alabama, Georgia, and Tennessee, and is distributed, although as yet thinly, over an additional 20,000 square miles in these States, as well as in Kentucky and South Carolina.

Latest reports show the insect to be within 10 miles of Florida, 16 miles of Mississippi, 3 miles of North Carolina, and 23 miles of Virginia. The varied nature of crops grown over this large territory renders the practical application of regulated quarantine difficult, if not impossible, with the funds available, say officials of the board. Moreover, a material hardship, they believe, would be occasioned to the general agricultural development of this region should such a quarantine be enforced.

It is evident, officials say, from the present distribution of this insect east of the Mississippi River either that the rate of spread is much greater than was originally believed possible, or that the original introduction took place at a date several years earlier than reports would indicate. In either case, the continuation of the quarantine was thought unjustifiable in the light of present information, as the economic loss through its enforcement would more than counterbalance the gain.

SWEET POTATOES FILMED FROM STOREHOUSE TO MARKET

The rapid deterioration of sweet potatoes between the time they are dug and the day they reach the consumer can be checked in several ways, say specialists of the Bureau of Markets and Crop Estimates of the United States Department of Agriculture. To show right methods of handling this perishable product, a new motion-picture film, "Sweet Potatoes from Storehouse to Market," has been prepared under the supervision of the bureau.

Since storage is essential if the grower is to sell to advantage, wrong and right ways of storing are shown first. When the bank or pit method is used, the loss due to decay runs from 50 to 75 per cent. When the potatoes are properly cured in a good storage house, carefully handled at all stages to prevent bruising, and kept at the right temperatures—80° F. while curing, 50° F. afterwards—the loss may be less than 5 per cent.

The film shows first a model storage house of frame construction on concrete pillars, with details of walls, roofing, ventilation, and heating. Then the potatoes are seen stored, to be later shipped in crates, not in bulk, after a preliminary grading. Inside views of a regular storage house show the details of each stage in the progress of the sweet potato crates, which are finally loaded on a refrigerator car for shipment. An inspector certifies the state of the car, and the last detail is the bracing of the crates to prevent their slipping. The damage caused by failure to brace a shipment properly closes the story.

While the motion pictures prepared by the United States Department of Agriculture are intended primarily for the use of extension and field workers, arrangements may sometimes be made to borrow them or to buy copies at approximately $40 a reel of 1,000 feet, upon application to the Department of Agriculture.

FOREST SUPERVISORS ALSO DEPUTY HEALTH OFFICERS

The Forest Service of the United States Department of Agriculture reports that the forest supervisors of the 14 national forests in Oregon are to be appointed as deputy State health officers without pay, through an agreement with the Oregon State health officer. This does not apply to forest rangers or other field officers. The duties of the forest officers under this agreement are to report insanitary conditions and violations of the Oregon health laws occurring within the national forests.

Under existing Federal rules the forest officers are required to protect and keep pure, so far as they are able, the domestic water supplies of towns, cities, and camping places, to prevent the accumulation of filth, and stop insanitary practices in the forests. There are still careless campers who not only do not put out their camp fires but who leave at their camping places tin cans, rubbish, and filth, all of which is a menace to both the public and to the forests. Forest officers urge compliance with the well-known slogan of the Mazamas, "Leave a clean camp and a dead fire."

DAILY WEATHER REPORTS ASSIST FOOD PRODUCERS

Through its reporting stations in all parts of the country the Weather Bureau of the United States Department of Agriculture advises crop growers of approaching storms and gives general weather and minimum temperature forecasts—all of which warnings have been of great value to farmers in the matter of crop production. Special services cover 16 of the principal grain States, the regional center being at Chicago, Ill., and 188 special reporting stations; 11 of the principal cotton States, with New Orleans, La., as the regional center, and 165 special reporting stations; rice and sugar growing sections of the South, with 6 special reporting stations; all or parts of 8 grazing States, with 67 special reporting stations. Special reporting stations are also maintained in the principal tobacco, potato, alfalfa seed, cranberry, citrus, and deciduous fruit-growing regions.

SUNFLOWERS USED FOR SILAGE.

The use of sunflowers for silage has proved popular in certain of the Northern Great Plains and Inter-Mountain States where it is not possible to produce a large tonnage of corn for silage purposes. In some sections the silage made from sunflowers has been found to compare favorably in palatability and feeding value with silage made from corn. This is not always the case, however, as it appears that in certain irrigated districts in the Northern Great Plains where the growth of sunflowers is rank and succulent, the resulting silage is often not very palatable. Experiments reported from the Huntley Experiment Farm in Montana of the United States Department of Agriculture show that while it is possible to produce from 25 to 30 tons of sunflowers per acre, it has been difficult to produce a silage that is as much relished by livestock as corn silage, which gives rather less than half as much tonnage per acre.

Nebraska, Virginia, and Ohio Lead All States in Campaign for Better Sires

During the three months April 1 to June 30, 1921, the Federal-State campaign for the wider use of purebred sires made more progress than in any similar period since the work started. Compared with the previous quarter, there was a large increase both in the number of persons enrolled as purebred-sire users and in the numbers of animals and poultry listed. Enrollment in the better-sires drive means a signed agreement filed with the United States Department of Agriculture by a live-stock owner stating that he will use purebred sires of good quality for all classes of live stock kept. The total enrollments for the three months ended June 30 was 714 as against 333 for the preceding period. The total animals owned by these persons was 33,250, and the total number of poultry was 62,619. The increases averaged over 100 per cent and were especially marked in cattle and fowls.

Many Crossbred Females.

As regards quality of animals, there was a noticeable accession of crossbreds in all classes except sheep. The effect of this was to increase the percentage of crossbred female live stock on the department's records. All sires, of course, used by persons participating in the better-sire drive are purebred and of good quality.

The major activity was in the Central West, the States of Nebraska and Ohio leading. Notable work was done also in Wisconsin, Virginia, and Texas. The three counties reporting the highest number of enrollments for the quarter were:

	County agent.
Webster County, Nebr.	Henry R. Fausch.
Washington County, Ohio	J. D. Hervey.
Pierce County, Wis.	H. G. Seyforth.

Other prominent counties were:

	County agent.
Morrill County, Nebr.	George R. Schroll.
Cass County, Nebr.	L. R. Snipes.
Roanoke County, Va.	J. M. Gish.
Champaign County, Ohio	E. P. Reed.

An outstanding feature is noted in the enrollment from Cass County, Nebr. Not one of the 37 farmers owned a single grade or scrub animal or fowl, though many crossbreds were listed, according to the reports, which in all cases were approved by the county agent.

Close Rivalry Among States.

Recognizing the many benefits which result from live-stock improvement work, several of the States are making the "Better Sires—Better Stock" movement one of the leading projects in their extension work. The Department of Agriculture is cooperating in furnishing suitable literature, lantern slides, posters, and information. During the last three months Nebraska rose to first place among all States on the basis of number of animals officially listed as being bred only to purebred sires. Virginia previously held this position and still holds first place in the number of persons enrolled. Ohio, moreover, has launched an intensive drive on the same project, and judging from field reports expects to take first honors within a few months.

Numerous other States have been active in replacing scrub and grade sires with good purebreds, although these activities are not apparent from the department's figures, since the live-stock owners do not in all cases report their change of methods. One of the large railroad systems of the country will aid in the better-sires movement this summer and fall by operating a special train through several Eastern and Central States. The train will carry, in addition to a corps of speakers and exhibit material, a supply of purebred sires, which will be used to replace, on attractive terms, scrub sires in the counties where stops are to be made.

Summary of enrollments in the "Better Sires—Better Stock" campaign, Oct. 1, 1919, to June 30, 1921, by States having more than 1,000 animals listed.

State.	Animals listed.	Poultry listed.	Persons enrolled.
Nebraska	41,827	83,975	739
Virginia	36,262	70,052	1,222
Montana	18,846	2,002	42
Ohio	15,019	27,812	322
Texas	12,323	5,958	150
New Mexico	9,482	1,275	40
South Dakota	9,303	4,917	50
Florida	7,231	6,415	72
Washington	5,685	41,829	158
South Carolina	5,594	4,744	302
Massachusetts	5,123	10,946	158
Vermont	4,753	4,055	96
Nevada	4,456	995	27
Utah	4,023	2,114	45
Connecticut	3,692	10,626	96
Indiana	3,347	9,077	87
Colorado	2,647	3,280	71
Wisconsin	2,520	4,240	53
Kentucky	2,512	5,481	61
West Virginia	1,700	5,855	60
North Carolina	1,489	3,179	85
Minnesota	1,294	2,135	53
New York	1,213	1,204	19
Idaho	1,059	461	17

SHIPPING-POINT INSPECTION OF CABBAGE IN WISCONSIN

A shipping-point inspection service on cabbage is being planned by the Wisconsin division of markets. Grades for cabbage have been established by the division, based on tentative cabbage grades proposed by the Bureau of Markets and Crop Estimates, United States Department of Agriculture. The service will be made effective beginning with the fall crop.

Although approximately 6,000 carloads of Wisconsin cabbage were marketed during the past season, about 25 per cent of the cabbage produced was unharvested for the lack of a market. In many cases the price received for cabbage that was marketed was not enough to pay for the actual cost of harvesting and marketing. It is with a view to preventing a similar situation the coming fall that shipping-point inspection has been decided upon. The Wisconsin division of markets appreciates that carefully graded stock invariably commands a premium over products that are not graded. Careful attention also will be given the loading and ventilation of cars.

The tentative cabbage grades proposed by the Bureau of Markets were published in February, 1921. U. S. No. 1 grade consists of sound heads of cabbage which are of one type, reasonably hard, and neatly trimmed; which are not soft, withered, bursted, or showing seed stalks; which are free from soft rot and practically free from damage caused by discoloration, freezing injury, insects, disease, or mechanical or other means. U. S. No. 2 grade consists of sound heads of cabbage which do not meet the requirements of U. S. No. 1. Detailed specifications for the grades can be had upon application to the Bureau of Markets and Crop Estimates, United States Department of Agriculture, Washington, D. C.

SUCCESSFUL COUNTY-WIDE PRUNING CAMPAIGN IN MAINE

In Kennebec County, Me., a pruning campaign was put on last winter and spring, in which as many as possible of those attending community planning meetings were induced to enroll. Recently the county agent made the following report: "On June 1 a letter was sent to every enrolled farmer with a return post-card for him to use in reporting what he had done to further the pruning campaign in his own orchard. Reports at this time have been received from 197 men, who reported that they had orchards containing 47,347 trees, and that they pruned 18,728 in 1920 and 25,427 trees in 1921, or a gain of 6,699 trees. Stated in percentages these men pruned 43.2 per cent of the trees in their orchards in 1920 and 53.7 per cent of their trees in 1921. Or, to put it in another way, these men pruned 35 per cent more trees in 1921 than they did in 1920. Cards are still coming in daily, but they will not greatly influence the percentages as given above."

Pig Club Boy Converts His Father to Replacing Scrubs with Purebred Hogs

Other pig club members may be encouraged by the way in which Thurbert Campbell, a 13-year-old boy in Haskell County, Okla., persisted in spite of various setbacks until in little more than a year he had not only started a purebred herd of his own, but eliminated all the scrubs from his father's farm and induced the latter to plant forage crops that had never been tried before. The story is told by the county agent who helped Thurbert with advice and instruction when everything seemed to be going against him.

Borrowed Money to Buy Bred Gilt.

To begin with, Thurbert's father was not very much interested, either in his joining the pig club in the spring of 1920, or in the Eureka Boys' Demonstration Club, of which he was a member. The father was unable, and partly unwilling, to back the boy financially when he proposed buying a bred gilt. He had plenty of ordinary hogs which he considered good enough for himself, and thought they would do quite as well for the boy to start with. A purebred gilt would cost $50. The county agent became interested and took the matter up with the father, who agreed to let the boy borrow the money if he could do so without obligation on the father's part.

Thurbert took great pride in his gilt, providing her with shade and clean, cool water, pulling green feed for her and obtaining all the kitchen waste from his mother. The father began to be interested and to consider some permanent hog pastures, as he had not bothered to lay out any for the scrub hogs he owned. His main field crop was cotton. The first litter of pigs from the gilt was looked forward to by all the family, to take the place of the scrubs.

When the time came 10 pigs were farrowed, but only one was alive. It was a crushing blow. Thurbert came to the county agent for advice. His $50 note was extended by the bank. He was determined not to quit. The gilt was bred again, and Thurbert went right ahead caring for his pig. The second litter brought eight pigs, all alive, and things looked considerably brighter for the boy. The one pig from the first litter sold about this time for $45 and two of the new ones for $15 each, so that after paying his note with interest Thurbert had $22 left.

From the same breeder who furnished the gilt Thurbert now bought a boar pig. The price, $50, was to be paid when the boy had sold some more stock. Two more pigs which were sold at $25 each cleared this note off and left Thurbert free from all indebtedness, with a balance in the bank.

What Constitutes Present Herd.

An arrangement has been made with an older brother who is to grow the feed while Thurbert furnishes the foundation stock and cares for the herd. The "herd" consists now of the foundation sow, soon due to farrow again; three young gilts which will be bred this summer; the herd boar, and one young boar which is for sale. All the father's scrub brood sows have been disposed of, with no other scrub left but a shote, which will go to the pork barrel.

Oats, rape, Sudan grass, and sweet clover have been tried out with good results for summer pastures. Bermuda and red clover have been planted on a small scale. The entire family is won over to the purebred stock idea and many changes for the better have been begun on this farm.

GEORGIA PEACHES PACKED UNDER OFFICIAL GRADES

One of the first cars of peaches out of the Fort Valley section, Georgia, packed and marked in accordance with the United States tentative grades for peaches, sold at top prices on the New York market, June 18, according to a report to the Bureau of Markets and Crop Estimates of the United States Department of Agriculture. They brought $3.25 per 6-basket carrier for the U. S. No. 1, 3–2 pack, and $4 for the U. S. No. 1, 2–2 pack. An agent of the bureau is in Fort Valley supervising this work and expects to have a large number of cars packed on this official-grade basis.

The Federal specifications provide for two grades for quality to be called U. S. No. 1 and U. S. No. 2, and in addition, the marking requirements demand that the minimum size, numerical count or style of pack be stated on the package. The U. S. Grade No. 1 shall consist of peaches of one variety which shall be firm, mature and well formed, free from dirt, growth cracks, cuts, skin breaks, and worms, and practically free from scab, scale, hail injury and damage caused by disease, insects, or mechanical or other means.

U. S. Grade No. 2 shall consist of peaches of one variety which shall be firm, mature and free from worms, growth cracks, and serious damage or discoloration caused by diseases, insects, hail, or mechanical or other means.

FIRE-COLORED SUNSET WARNS OF NEAR-BY TROPICAL STORM

A lurid sunset during the hurricane season below the thirty-fifth parallel of latitude may be an important warning of an approaching storm, says the Weather Bureau of the United States Department of Agriculture. This is especially true if the typical fire-colored sunset is combined with other signs, such as clouds, moving from an unusual direction, increase in suspicious wind directions (northeast, north, and east), sea swells, and even when there is no particular fall in pressure. Such a sunset, which may precede the sea swell and upper clouds by 24 to 48 hours or more, may be the only clue to the dangerous tropical storms of small diameter which form in a bend of the isobars, over the Gulf Stream, or are offshoots of larger hurricanes undiscovered by ships.

The fire-colored sunset is quite different from the ordinary colored sunset, being awe-inspiring and apparent even to a layman, untrained in interpreting weather signs. An approaching hurricane may affect the atmosphere and the rays of light passing through it for over 1,000 miles. Observers should be on their guard if a fire-colored sunset is noticed during the season when the beaches are crowded with visitors, because beaches are especially exposed. Often there are no good harbors and the available means of carrying people to safety are limited. To allow a hurricane to appear unheralded might mean a serious loss of life.

COUNTY AGENT SOLVES TWO WATER-IN-THE-HOME PROBLEMS

The problem of having running water in the house, as well as on the farm, is one which farmers everywhere are struggling to meet. The county agent of Cabarrus County, N. C., employed by the United States Department of Agriculture and the State agricultural college, was able to persuade one of his demonstrators to dig out a basin on the side of a hill near his house and line it with cement instead of building a tower. The elevation was about 20 feet above the top of his house, which gave sufficient pressure. The outlay for placing water in both his and his brother's house was $400. The basin holds about 2,000 gallons and keeps the water at a more uniform temperature than would a tank in a tower, which would have cost twice as much.

Better Packages Needed in Which to Pack Fruits for Foreign Shipment

The frailty of packages used in shipping American fruits to other countries is pointed to by the United States Department of Agriculture as a real cause for complaint. True, it is not always known at packing time whether the fruit is to be exported or not, and it would not be practicable always to employ special export packing methods even if such methods were adopted; but at the same time, improved packing methods might well be used in the purely domestic trade, for the necessity exists there as well, even if in lesser degree.

Shippers Have Much to Learn.

Compared with the results secured by other countries in export trade, American shippers have much to learn in packing fruits for foreign shipment. Australian apples require about two months in transit to England, but the fruit generally arrives in good shape with little or no breakage or decay. The same is true of South African oranges. Even such tender fruits as apricots and peaches are brought to England from South Africa, not only sound, but free even from the little dents and marks which the American shipper has come to accept as inevitable. Belgian hothouse grapes arrive in England with every berry perfect and the bloom almost untouched.

Barrels are not entirely satisfactory as containers for apples in export shipment, says the department, and it might be worth while to experiment rather extensively with third and half-barrels or with some form of box or crate as a possible and acceptable substitute for the barrel in eastern districts. In any event, there is little excuse for using barrels on which some of the hoops are not fastened, or in which nails protrude to puncture and ruin the fruit.

The department states that the practice of wiring export apple and pear boxes has done much to cut down excessive breakage in transit.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended July 27, 1921:

Sweet-Potato Storage. By H. C. Thompson, Horticulturist, Office of Horticultural and Pomological Investigations. Pp. 27, figs. 15. Contribution from the Bureau of Plant Industry. Revised June, 1921. (Farmers' Bulletin 970.)

This bulletin describes the types of storage houses that have proved successful, and the proper method of handling sweet potatoes from harvesting to marketing.

Of interest to sweet-potato growers.

Northwestern Apple Packing Houses. By Raymond R. Pailthorp, Investigator in Marketing Fruits and Vegetables, and Harold W. Samson, Specialist in Standardization. Pp. 39, figs. 26. Contribution from the Bureau of Markets. June, 1921. (Farmers' Bulletin 1204.)

This bulletin deals with the details of construction, arrangement, equipment, and operation of boxed apple packing houses and is based on a study of methods and practices which have given the greatest satisfaction in commercial operations.

Yearbook of the U. S. Department of Agriculture, 1920. Pp. 888, il. Price, $1.25.

The amount of the Yearbooks allotted to the department will not permit us to furnish a copy to anyone except our own investigators, field workers, and official correspondents. Applicants, other than persons in these groups, are therefore advised that the publication can not be furnished to them by the department. Each member of Congress receives an allotment to be distributed as he may direct and the Superintendent of Documents, Government Printing Office, Washington, D. C., has copies for sale at $1.25 per copy.

Report of the Porto Rico Agricultural Experiment Station, 1920. By D. W. May, Agronomist in charge. Pp. 39, pls. 6. Price, 10 cents.

Journal of Agricultural Research. (For sale only.) Vol. 21, No. 7. July 1, 1921. Contents: Study of the Relation of the Length of Kernel to the Yield of Corn. (Zea mays indentata) (Kans.-25) By C. C. Cunningham. Distinguishing Characters of the Larval Stages of the Ox-Warbles Hypoderma bovis and Hypoderma lineatum, with Description of a New Larval Stage. (K-97) By E. W. Laake. Pathogenicity of Corticium vagum on the Potato as Affected by Soil Temperature. (Utah-13) By B. L. Richards. Further Experiments in Field Technic in Plot Tests. (Minn-42) By A. C. Arny. Relation of Horse Nettle (Solanum carolinense) to Leafspot of Tomato (Septoria lycopersici) (G-235) By Fred J. Pritchard and W. S. Porte. Pp. 427-505. Pls. 20, figs. 30. Price, 15 cents.

Experiment Station Record. Vol. 44. No. 7, May, 1921. E. W. Allen, Ph. D., Editor. Pp. 601-700. Price, 10 cents.

Experiment Station Record. Vol. 42, index number. June 6, 1921. E. W. Allen, Ph. D., editor. Pp. XXIII, 901-1007. Price, 15 cents.

Note.—The Record is a technical review of the world's scientific literature pertaining to agriculture. It is not intended for general distribution and its free distribution is restricted to persons connected with the agricultural colleges, experiment stations, and similar institutions, and to libraries and exchanges. It can not be sent free to individuals having no official connection with public institutions. The Superintendent of Documents will receive subscriptions for this publication, which is issued in two volumes a year, 10 numbers each, at $1 a volume.

Service and Regulatory Announcements. Bureau of Chemistry supplement 114. (N. J. 9151-9200). Pp. 107-144. July 25, 1921. Price, 10 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your requests definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct; not to the Department of Agriculture.

RAPID EXPANSION OF FEDERAL WAREHOUSE SYSTEM IN TEXAS

Every indication points to a considerable expansion in the near future in the system of warehouses licensed under the Federal warehouse act, especially in Texas, according to officials of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, who look for valuable results from the recent establishment of a permanent branch of the warehouse division at Dallas, Tex.

A number of new applications for Federal licenses have been received from warehousemen in the territory served by the Dallas office, and much interest is being shown, it is said, among bankers, warehousemen, and others in the Federal licensing system. Special effort is being made to obtain the cooperation of some of the more important interests in the new territory. Already assurances of this have been received from the Federal reserve bank at Dallas, the Texas Chamber of Commerce, the extension service at A. and M. College, State officials of Texas whose work is related to warehousing, and the Texas Farm Bureau Federation, including the newly formed Texas Cotton Growers' Association.

Under an act of Congress the department is authorized to license and bond cotton, grain, tobacco, wool, and flaxseed warehouses that come up to certain requirements. The receipts issued by the warehouses are of approved, standardized form, and are looked upon by banks generally as exceptionally high-grade collateral for loans to growers.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1921

Weekly News Letter

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VOL. IX. AUGUST 17, 1921 No. 3

STEADY DECLINE INDICATED IN RATE OF TENANCY INCREASE

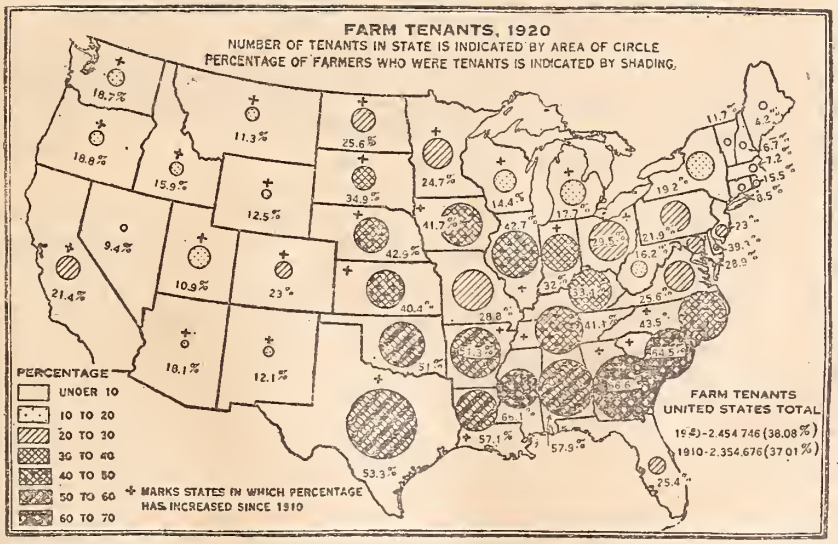
Out of 6,500,000 Farmers 2,500,000 Do Not Own the Land from Which They are Producing Crops.

Eight Southern States Have More Rented Farms Than Forty Others—New Census Figures Give "Croppers" Large Acreage—Tract Leases Increase in West.

Although tenant farming still is advancing its lines into American agriculture, its rate of advance is rapidly diminishing. Preliminary statistics of the 1920 census are the basis for this opinion expressed by the United States Department of Agriculture. While the losses in the size of the farm tenant population in 20 States amounted to over 57,000, the gains in 28 States totaled nearly 160,000. Out of 6,500,000 farm operators in 1920, 2,500,000 did not own the land they farmed. These tenants operated 38.1 per cent of the farms of the United States.

The outstanding States for farm tenants were Texas and Georgia, the former with 232,308 and the latter with 206,875. These, together with six other Southern States, contain tenant farms to the number of 1,232,042. In other words, eight Southern States have more tenants than the other 40 States. Probably 600,000, or between 45 and 50 per cent, of these southern tenants will be classified as colored by the 1920 census.

The census of 1920, for the first time, affords a separate classification of tenants known as "croppers." In the census reports thus far published one finds data on croppers only as found in the 17 Southern States. The census has defined croppers as share tenants whom the landlord furnishes with work stock. The number of croppers in Southern States is reported as 561,005, or 17.5 per cent of all farmers and 35.2 per cent of all tenants in those States. In the eight Southern States, which contain over half of our American tenantry, croppers averaged 38.1 per cent of all tenants. In Mississippi the average reaches 48.3 per cent. On the basis of special investigations made by the Division of Land Economics of the Department of Agriculture it appears probable that croppers were less numerous in 1920 than in many previous years.



Illinois, with 101,196 tenant farms, led the States of the North and West, standing well above Ohio (75,644), Missouri (75,727), and even Iowa (89,064).

Of the 14 States with the highest percentages of tenancy, 10 are Southern States in which the percentages range from 41 to 67. The four non-Southern States with highest tenancy percentages are Nebraska (42.9), Illinois (42.6), Iowa (41.7), and Kansas (40.3). In the South tenancy prevails heavily in the Mississippi Valley and eastward to the Atlantic coast. The northern part of the

(*Continued on page 5.*)

SOUTHERN DAIRYMEN PROSPER AS COTTON GROWERS ASK LOANS

Merchants in Towns Surrounding Milk Producing Districts Report Business to be Exceptionally Good.

Statistics Gathered by Department of Agriculture Offer Encouragement to Farmer Who Would Break Away from One-Crop System.

A comparison of the financial condition of dairy farmers and dairy communities with cotton farmers and cotton communities in Mississippi brings out the fact that while 80 or 90 per cent of the cotton farmers owe banks money and are asking for extensions on their notes, there are few instances of notes held against dairy farmers. The merchants in towns surrounded by the best dairy communities report their business throughout last fall and winter as remarkably good.

This statement is made on the authority of the extension dairy husbandman, who for nearly 10 years has engaged in the movement carried on by the United States Department of Agriculture and the State Agricultural College of Mississippi to build up dairying in that State and furnish the farmers with a source of income after the boll weevil had reduced the production of the South's great staple.

To farmers these facts should lend encouragement to break away from the one-crop system, the specialist says; to the bankers and business men they should be convincing proof that greater farm prosperity, attained by a more permanent and constructive type of farming,

benefits the entire community. The growth of the dairy industry throughout the South is limited in a very large degree by the willingness and ability of bankers and other moneyed interests to finance the cotton farmer of the past in buying cows and making the necessary changes in order to branch out in a new line.

The experience of the business people in a western Pennsylvania town, which became interested in promoting dairying and improved agriculture generally, should be illuminating to many of the southern bankers who have not been converted to diversified farming. In 1915, a creamery was organized in this Pennsylvania town, and one of the two banks in the place became very active in promoting dairying and financing the industry. It took the initiative in bringing in cows to sell to the farmers at cost, and inconvenienced itself in many ways to accommodate the farmers.

Dairy Associations Grow.

In five years there was built up a large membership in various dairying associations; 43 members in the cow-testing associations, 96 in bull associations, 187 in breeders', and 698 in creamery patrons' associations. A Young Farmers' Club had a roll of 83, and there were 75 members of the Boys' and Girls' Dairy Club. Thirty farmers became members of the chamber of commerce, thus making the farmers feel that town and country were inseparably bound together in one big community. The dairy herds, after five years, had 1,100 purebred cows, 232 purebred bulls, 1,360 purebred heifers, 4,513 tuberculin-tested cattle, and 176 accredited herds.

During the year ended June 30, 1920, the creamery paid out $410,125.15 to its patrons. The bank which had promoted the agricultural development made a gain in deposits of $968,847.12; while the older bank, which also gained because of the greater general prosperity in the town, showed a gain of $542,383.01. About $1,500,000 in these two banks was deposited by farmers, an increase of $1,000,000 in farmers' deposits in five years.

The first carload of exhibits from the United States Department of Agriculture for the State fairs of the Central West was shipped from Washington to Sedalia, where the Missouri State Fair opened August 8. Leaving Sedalia August 20 the exhibit will be taken to Milwaukee, Wis., for the State Fair, and from that city to Topeka, Kans., for the Kansas Free Fair September 12 to 17. From Topeka the exhibit will go to Wichita, Kans., for the international wheat show.

DEPARTMENT URGES PORTO RICO TO SAVE $3,500,000 ON HOGS

Island Would Not Be Compelled to Import Pork and Lard Supplies if Forage Crops Were Grown.

Cattle Breeding Found to be Highly Important Factor in Economic Success of America's Insular Possession—Fruit Production Also Offers Possibilities.

From Porto Rico there comes into the United States each year a large contribution to the sugar, fruit, vanilla, and tobacco supply. Coffee is extensively grown, but little of it reaches the States. The report for 1920 of the Porto Rico Agricultural Experiment Station, under the supervision of the United States Department of Agriculture, at Mayaquez, indicates agricultural improvements which should benefit owners, laborers, and ultimately, the consumers in this country, who pay higher prices when any commodity is produced by wasteful or costly methods.

The prosperity of the island for five centuries has been dependent upon agriculture. As there is no coal or water power, Porto Rico never will become a manufacturing country. In climate and scenic beauty the island is ideal. Living conditions constantly are being improved, although there are too many peons, or laborers, who do not command a living wage under present methods.

Land Kept Too Long in Sugar Cane.

It is difficult to induce Porto Rican planters to grow rice and other crops in rotation with cane in order to benefit the soil. Because of recent high prices for sugar, the lands have been kept in cane too long. Specialists in the experiment station have warned planters to prepare for a fall in sugar prices. Rice cultivation is unpopular because special machinery must be installed. Legumes, such as the velvet bean and sunn hemp, give promise as rotation crops with cane. The tobacco industry is thriving, and capable of great expansion with less attention than other agricultural projects.

Live-Stock Industry Poorly Developed.

A better rounded system of agriculture, including the production of food and work animals, and forage cover crops with which to maintain them, is strongly recommended in the report. If forage crops for hogs were grown to a greater extent it would not be necessary to import into Porto Rico pork and lard to the value of $3,500,000, as was the case last year. Neither pigs nor poultry supply the local food demand, or even utilize the kitchen waste.

Owing to the nature of the country, oxen must continue to do field work; therefore cattle breeding is highly important for work animals as well as for dairy purposes. Tick-eradication work is helping to eliminate the greatest drawback to the cattle industry.

Fruit Problems.

Pineapples, grapefruit, and oranges are the main fruit products of Porto Rico. Surplus pineapples locally may be canned; some grapefruit juice is bottled; but owing to a lack of shipping facilities, there is an immense annual loss of citrus fruit. Investigations are being carried on which are designed to save the food and money waste due to decay of fruits in storage and transit. Data on the cost of production and handling is being gathered.

Experiment station specialists believe that by their constant dissemination of agricultural information, by the introduction of foods other than those native to the island, such as the common temperate-zone vegetables, and by scientific investigations aimed at the correction of adverse agricultural conditions, general standards of life and production in Porto Rico can be raised.

MUCH COAL WASTED IN THE AVERAGE DAIRY PLANT

About one-half the coal used in the average dairy plant is wasted. At least that is the opinion of the United States Department of Agriculture. Even if the stoking is done carefully by men who have given some thought to their work, and only one-fourth of the coal is wasted, the loss still is large.

The Dairy Division is so certain of these things that it has prepared a poster discussing the subject, and a bulletin, No. 747, The Economical Use of Fuel in Milk Plants and Creameries, both of which may be had free upon request from the Division of Publications. Another poster entitled "Turn Cold Into Gold" is intended for creamery receiving stations for the producers to read. This may be had free, also, upon request.

A close study of the dairy plant will result in a material saving in fuel, the department's specialists say. Some of the suggestions they make for greatest economy in the saving of fuel and operation of the plant are: Keep boilers clean both inside and out; cover steam piping, uptakes, breeching, and exposed parts of boiler; stop all steam, water, and air leaks; regulate dampers to load requirements; cut out boilers not needed; feed boiler continuously, and maintain an even pressure; utilize the heat in exhaust steam; keep bearings correctly aligned and lubricated; keep belts at proper tension and in good repair; and study methods of firing.

Hog Cholera Peril Often Lurks In "Thrashing Ring" Carelessness

Recently an instance was brought to the attention of the United States Department of Agriculture where hog cholera appeared almost simultaneously on the farms of six out of the eight members of a "thrashing ring." The infection on all six farms was traced to the premises of one of the members of the "ring," whose hogs were sick at the time the thrashing was done on his farm about 10 days previous.

Loses Half His Hogs.

The owner of the sick hogs failed to recognize the nature of the disease, and in his eagerness to care for his crop while the weather was favorable, he delayed calling a veterinarian until after the thrashing was finished. As a result he lost over half his hogs and the infection was carried to his neighbors' herds.

It is a common practice for farmers to borrow and loan farm implements and exchange labor when they are threshing, shelling old corn, filling silos, and hauling stock and grain to market. Farmers are advised to read Farmers' Bulletin 834, Hog Cholera, especially the discussion of modes of infection with hog cholera.

"Thrashing rings" are quite popular and no doubt under present conditions crops can be handled speedily and economically in this way, but the danger of carrying hog cholera from infected hog lots should be kept in mind and precautions taken to avoid it. In the instance cited the thrasher was set in the hog lot, although it was known at the time that some of the hogs were sick.

It is much safer to thrash grain in the field and avoid driving into inclosures where hogs are kept. If driving through the hog lots is unavoidable, the members of the "thrashing ring" are advised to rinse their shoes in a disinfectant and remove their overalls; also wash their horses' feet and legs, and the wheels of the wagon with the disinfectant before returning to their own premises, and especially their hog lots. Hog cholera is a highly contagious disease and often losses can be avoided by using the simple and easily applied precautions specified.

The incident cited is one of many that have come to the attention of the department this year, and it is mentioned as a warning to those farmers who borrow farm implements and breeding stock, or exchange labor with their neighbors.

AREA WORK USED TO COMPARE SYSTEMS OF FARM MANAGEMENT

One method of determining what systems of farming in a community are more profitable or require less labor than others is to analyze all the farms in an area and compare the data thus secured with a resurvey of the same farms a year or more later. This is the plan used by the United States Department of Agriculture in a number of communities, and is known as area work. By obtaining cost figures on the same farms each year, or at longer regular intervals, the department is able to compile very practical information relative to farm management.

This work was started by the department in Indiana in 1910, when all the farms in a given area were studied. A resurvey was made on the same farms in 1913 and each year since. The same method of farm-management studies is being conducted in general farming areas in Ohio and Wisconsin, on citrus and truck farms in Florida, on 150 farms in the Shenandoah Valley of Virginia, and in several other States. Studies have been made on owner and tenant farms showing the economic effect of crop rotation, the effect different systems have on yield, the comparative merits of feeding the crops raised on the farm or selling them, and the advantages of labor-saving equipment.

Since the first surveys were made tractors have been purchased and are now in use on some of the farms under observation, thus giving an opportunity to study their efficiency and to compare systems of management before and after they were used. Comparative studies are also made on farms using tractors and neighboring farms where horses supply all the farm power.

NEW MEXICO MOHAIR GROWERS GAIN THROUGH POOLING CLIP

The mohair crop from the goats in Grant County, N. Mex., has always been sold in small lots to speculators, who never paid the growers what their clip was really worth. Most of these lots, which ranged from 200 to 1,500 pounds, were too small to ship individually. The county agent of the United States Department of Agriculture and the State agricultural college, through the assistance of the field marketing agent of the Bureau of Markets and Crop Estimates, helped to organize the mohair producers in the county into a cooperative association by which the best possible price could be secured for the growers at the least expense.

The county agent, with one or two farsighted and enthusiastic growers, called on every mohair producer in the county. The mohair from the spring clip of all the growers in the association was pooled in Silver City. The fall clip will be similarly disposed of. Buyers and spinners in different parts of the country made bids for the mohair, and finally the entire lot of between 25,000 and 30,000 pounds was shipped to a Boston purchaser at a price of practically 40 cents a pound. Without the association the growers would have sold to the buyer who goes regularly through this territory. His offer this year was 30 cents a pound, so that the growers got between $2,500 and $3,000 more for their mohair by selling cooperatively than they would otherwise have received.

BETTER PACKING HOUSES FOR NORTHWESTERN APPLE GROWERS

"The construction of well-planned and well-equipped packing houses is essential to the economical handling of boxed apples in the Northwest. The recent building program has not kept pace with the demand of the industry and severe losses have been sustained on account of limited facilities for packing and for storing unpacked fruit temporarily. The situation has been aggravated by the enormous increase in production during the past few years, as well as by the serious shortage of transportation equipment."

The Bureau of Markets and Crop Estimates, United States Department of Agriculture, thus sums up the results of their study of methods and practices which have given the greatest satisfaction in commercial operations. Full details of the work are contained in Farmers' Bulletin 1204, Northwestern Apple Packing Houses, recently issued by the department.

Apple packing houses may be classified in two groups, individual packing houses, which are more commonly known as ranch packing houses, and community houses, operated either by cooperative associations or by individuals. The percentage of the crop packed in community houses is increasing steadily, and though no definite figures are available, careful estimates show that the amount increased from about one-fourth of the total crop in 1916 to approximately one-half of the crop in 1919.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

WALTER G. CAMPBELL MADE ACTING CHIEF OF CHEMISTRY

By an order of Secretary of Agriculture Wallace, signed July 30, Walter G. Campbell, Assistant Chief of the Bureau of Chemistry since 1916, is made acting chief to fill the place of Dr. Carl L. Alsberg, whose resignation, effective July 15, is now officially announced.

Dr. W. W. Skinner, chief of the water and beverage laboratory of the bureau since 1908, is designated as assistant chief.

Mr. Campbell has been with the bureau since 1907, when he was called from his work of assisting in enforcing the State food and drugs laws of Kentucky, and was selected by Dr. H. W. Wiley, then chief of the bureau, as chief inspector to organize the inspection work under the Federal food and drugs act, which became effective at that time.

Upon the reorganization of the Bureau of Chemistry in 1914, he was made chief of the eastern food and drugs inspection district, and in December, 1916, was promoted to assistant chief. Mr. Campbell has been largely instrumental in organizing the field work of inspecting interstate and foreign commerce in food and drugs. He is 44 years old, a native of Kentucky, and a graduate of the University of Kentucky.

Dr. Skinner entered the service of the bureau in 1904, and has had considerable experience in agricultural chemistry, having been connected as a chemist with the Maryland Agricultural College, now part of the University of Maryland, and the Arizona Experiment Station. He has had charge of the beverage work of the bureau in the enforcement of the food and drugs act. He was born in Baltimore in 1874, and received the degree of bachelor of science at Maryland College in 1895 and master of science at George Washington University in 1897. The Maryland institution has since conferred upon him the degree of doctor of science.

PLANT PESTS CAUSE LOSS OF MILLIONS OF BUSHELS OF WHEAT

If all the wheat now destroyed annually by pests could be saved and made into flour the United States Department of Agriculture says it would add approximately 29,463,700 barrels to the yearly output of the Nation. The annual production of wheat in this country for the four-year period 1916 to 1919, inclusive, was 783,849,500 bushels. The annual loss from disease during this period was 147,318,500 bushels.

While it is not possible entirely to eliminate wheat diseases, it is possible to reduce the toll much below what it has been in recent years, says the department. One branch of the work of the office of cereal investigations in the Bureau of Plant Industry is to work out the preventive and control measures for the diseases of all cereal crops. Another branch of the work of this office, which is of equal importance in increasing production of cereal crops, is the development and introduction of superior varieties of grain which produce higher yields in localities where they are especially well adapted, or which have disease-resistant qualities. This work is carried on in cooperation with the various State experiment stations, and in many cases has made profitable farming possible in sections in which agriculture was hazardous previous to the introduction of new crops or varieties particularly well suited to local conditions.

WILL SEARCH OLD WORLD FOR VALUABLE ECONOMIC PLANTS

J. F. Rock, agricultural explorer of the United States Department of Agriculture, will leave Washington about August 20 on a three-year trip through little-explored regions of southeastern Asia in search of useful varieties of trees and plants which are unknown to plantsmen of the western world.

One of the special objectives of this expedition is a search for chestnuts worthy of introduction to the eastern United States. There are known to be chesnuts in western China and southward into Siam and Burma and even as far south as Java which form immense forest trees. The resistance of these trees to the bark disease is unknown, but since certain seedlings of a dwarf chestnut sent in by Meyer in 1906 from China have shown a high degree of resistance to the blight, it is deemed important to secure all the chestnuts of that region both for experimental introduction as timber and nut-bearing trees and for the purpose of breeding up a blight-resistant hybrid chestnut tree which will take the place of the American chestnut, now rapidly dying out. Southeastern Asia is the home of the chestnut and its relative, the castanopsis. There are more species there than in all the rest of the world together, and since Dr. Van Fleet, one of the department's plant breeders, has already successfully made hybrids between the American, Japanese, and Chinese chestnuts, there is good ground to believe that through hybridization it will be possible to produce a disease resistant chestnut forest tree to replace the American vanishing species.

In connection with this, his major work, Mr. Rock will complete his studies of the chaulmoogra oil tree—source of the leprosy cure—of the warmer portions of that region and study the various wild and cultivated plants which are worthy of being brought more forcibly to the attention of the botanists and plantsmen of America.

CHANGE IN THE OFFICIAL STANDARDS FOR SHELLED CORN

Announcement of a change in the official grain standards of the United States for shelled corn was made recently at the United States Department of Agriculture. Under an order signed by Secretary Wallace, effective October 3, 1921, the size of the perforations in the screens used for determining foreign material and cracked corn is fixed at twelve sixty-fourths of an inch instead of fourteen sixty-fourths of an inch as at present.

Action was taken after a thorough investigation of numerous complaints made to the department by merchandisers of shelled corn that the larger holes permitted a considerable percentage of small whole kernels and fair-sized pieces of broken kernels of corn, which are entirely suitable for milling and feeding purposes, to pass through the sieve and be classified as foreign material and cracked corn. The result was a lowering of grade. This was especially true of kiln-dried corn, which fractures easily in handling. Officials believe that the smaller perforation will overcome these objections and meet the approval of the trade.

The date set for the change to become effective is before the bulk of the next corn crop starts to move on its way to the markets.

Urge Destruction of Volunteer Grain, As Between-Season Host to Green Bug

Destruction of all volunteer small grain, especially oats and wheat, during the period from midsummer to early fall, is the most important control measure for the green bug, which has often caused the loss of many millions of dollars worth of small grains throughout the Mississippi Basin. This method of control is said by the United States Department of Agriculture to be of the utmost importance in Texas, Oklahoma, Kansas, and Missouri, where serious outbreaks may originate under favorable conditions and sweep northward throughout the wheat-belt States.

In the southern half of its range the green bug is dependent largely on volunteer grain for its existence from one crop of grain to another, and experiments have shown that destruction of the volunteer growth caused the insects to perish in large numbers for want of food.

Community Action Necessary.

It will not do, specialists say, for merely a few growers to adopt such measures. They must be put into practice throughout large areas, wherever the green bug winters in numbers, if satisfactory results are to be expected. The volunteer grain may be disked and plowed down or otherwise destroyed, and some other short-season crop planted or the land fallowed until the next spring, if the blowing or drifting of the soil is not a factor. The hazards of weather, it is said, should not be depended upon to protect the grain. Experiments showed that the bug could not be destroyed by means of stomach poisons, such as arsenical insecticides, because it feeds only upon the juices of the plants. Contact insecticides, too, prove of little avail.

The green bug, a small, soft-bodied aphid or plant louse, is found distributed throughout nearly the entire United States and extends into Canada. Its injuries are inflicted principally throughout the Mississippi Basin. It is estimated to have caused in one year, 1907, a loss of not less than 50,000,000 bushels of oats and wheat in Kansas, Oklahoma, and Texas. Seventy per cent of the wheat acreage in Texas was abandoned that year because of the ravages of this formidable pest. Smaller outbreaks occurred in 1911 and 1916, and others may be looked for unless growers adopt adequate control measures.

While the green bug can exist to some extent on a wide variety of grass-like plants, including most of the small grains, it is particularly injurious to oats and wheat. For this reason these plants are considered its favorite hosts and should receive the closest attention in all control methods which may be adopted by growers.

For the aid of farmers in protecting their crops from this pest, the Department of Agriculture has prepared Farmers' Bulletin 1217, The Green Bug or Spring Grain-Aphis: How to Prevent Its Periodical Outbreaks, containing details concening the life history of the bug and means for its control. Copies may be had upon application to the Division of Publications, Department of Agriculture, Washington, D. C.

STEADY DECLINE INDICATED IN RATE OF TENANCY INCREASE

(*Continued from page 1.*)

Mississippi Valley likewise is distinguished for tenant farming, and a significant trend toward tenant farming has appeared recently in the States of the Pacific Northwest.

RATE OF INCREASE IN FARM TENANTS FALLS.

Out of every 1,000 farmers in the United States there were 381 tenants in 1920. In 1910 the number of tenants per 1,000 farmers was 370; in 1900 it was 353; in 1890, the figure had fallen to 284, and in 1880, it was noted to be 236. The increase since 1880 has been 61 per cent. To this increase in tenant farming, the decade ending in 1890, contributed over one-third; the decade ending in 1900 nearly one-half; the decade ending in 1910 less than one-eighth, while the decade just closing contributed only one-thirteenth.

Though the tide of tenancy stands higher to-day than at any other time in American history, there is apparent a very marked falling off in the rate of increase.

Where has the tide of tenancy been rising most vigorously and where, if at all, has it been ebbing?

South Dakota Leads.

In North Dakota, for every 100 tenants in 1880 there were 336 in 1890, 414 in 1900, 696 in 1910, and 1229 in 1920. In an average South Dakota farmer group there are now 729 tenants to 100 as found in 1880. For speed in displacing owners by tenants, the Dakotas outdistance all other States. In 46 other States, however, the owners have given more or less ground to tenant advance between 1880 and 1920. In only two States, New Hampshire and Florida, is tenant farming less in evidence than in 1880. Taking the United States as a whole, there are now 16 tenants in an average farmer group to 10 forty years ago.

As already pointed out, the rate of increase in tenant farming has been slackening in nearly all parts of the United States. To each 100 tenants in 1880, 20 were added before 1890, 29 in the 10 years ending in 1900, 7 between 1900 and 1910, and only 5 between 1910 and 1920. In the increasing proportion of farms tenanted, 32 States took part between 1880 and 1890, 45 between 1890 and 1900, 25 between 1900 and 1910, and 28 between 1910 and 1920. The two decades that closed the nineteenth century, therefore, closed the period of most remarkable tenant increase in our history. None of the States in the New England and Middle Atlantic groups has shown an increase since 1900, some of them having passed their high-water mark in the eighties. Most Southern States practically completed their transition from the slavery plantation system to the tenancy system before 1900.

Tenancy Grows in West.

Evidences that there is an approaching balance between tenancy and ownership are not so strong in the Western States. In these States there appears recently to have been a recurrence of the violent rate of increase in tenancy that affected nearly the whole country during the nineties. In most other parts of the country it appears that tenancy has practically reached its peak.

The causes of these changes and the best methods of adjusting landlord and tenant relations to fit new conditions are being studied by the Office of Farm Management and Farm Economics on a basis of county statistics and investigations of individual practices on rented farms in the preparation of bulletins in a series now appearing.

HOW TO BAKE A FRUIT PIE.

Juicy fruit pies present unexpected difficulties to the home cook owing to their tendency to become soggy. Specialists in the experimental kitchen of the United States Department of Agriculture have found, in the course of pastry-baking experiments, that if the undercrust is prebaked until slightly brown, the pie will be much better. Another point brought out in connection with pastry making, especially in warm weather, is that speed in handling is an important factor if the housewife does not wish her dough to become soft and consequently difficult to roll and lift.

Careless Tourists Start Forest Fires That Burn Over Immense Area Annually

Because of the war, Germany lost about 21,547,520 acres of land exclusive of plebiscites. This was undoubtedly a serious national misfortune to Germany. The United States, during the period 1916–1920, inclusive, burned up 56,488,-307 acres of our forested area—over two and one-half times as much as Germany's entire loss—an area greater than New York and Pennsylvania combined, or of Minnesota, Kansas, Idaho, or Utah.

Forests Are Popular Vacation Spots.

While it is impossible to trace the origin of all forest fires, the records of the Forest Service of the United States Department of Agriculture show that a large number originate through the carelessness of happy-go-lucky tourists. The Forest Service is anxious to encourage the use of the national forests as recreation grounds. It cooperates with plans for building fine roads through the forests, and establishes numerous free camping grounds, where shelter, water, and firewood may be obtained. Many of these camps are located on main automobile highways and are easily reached. Some States provide tourist guide maps to the forests and camp sites. About 5,000,000 people, it is estimated, use the forests each year during the vacation season. At Eagle Camp Ground, on the Columbia River Highway, in the Oregon National Forest, 132,000 tourists registered last year.

Some of the campers, however, do not seem to appreciate the pleasures and privileges afforded to the touring public. They disfigure the scenery with rubbish and filth; they disregard game laws and pollute streams, but their worst and most frequently recurring offense, according to forest officers, is the starting of destructive forest fires by carelessness either with camp fires or with smoking.

A lighted cigarette thrown into dry leaves or needles may start a fire that will spread for miles. A camp fire not fully extinguished may be the means of destroying valuable timber which has taken hundreds of years to reach maturity. The reports of forest rangers are filled with dramatic accounts of the work involved in controlling such fires, and also in detecting and bringing the culprits before a judge after following the very slight clues obtainable in a deserted camp site. Sometimes an old bottle or a pocket handkerchief will reveal the original possessor who did not put out his fire. Sometimes a particular make of automobile tire can be traced for miles and the careless camper brought to justice.

Public Should Develop More Conscience.

No fines, however, on the part of the local magistrate will restore the burned area. While forest rangers are vigilant and alert to catch carelessness and prevent incipient fires, the real need, the foresters say, is for the development of more conscience on the part of the public which uses the national forests. It is greatly desired by the Forest Service that all the 147 national forests, from the Atlantic to the Pacific, and from Gulf to border, be used and enjoyed to the fullest extent by as many people as possible. This involves universal adoption of the slogan, "Be sure your fire is out!"

Sheep Herder Who Caused Forest Fire Fined and Sent to Jail

It takes a versatile man to be a forest ranger and look after the national forests which are under the supervision of the Forest Service of the United States Department of Agriculture. Besides having to be timbermen, cowmen, sheepmen, road bosses, surveyors, and game wardens, they must often turn off a finished "Sherlock Holmes job." Witness a little incident in the day's work of a ranger on the Coconino National Forest in Arizona last summer.

On a hot July day a fire alarm on his ranger district sent him hurrying to the scene of action. It cost a hard fight that night, with all the help that could be gathered, to bring the fire under control. But besides fighting the fire, it was also his duty to take note of such evidence as the place afforded of the cause.

The only tangible thing he could find to go on was the tracks of a band of sheep. Inquiry developed that a band of bucks belonging to a large sheep company had passed through about the time the fire was first reported. At daybreak the following morning the ranger started on their trail.

Because of the cinder formation of the country, and a very high wind which in many places had entirely obliterated the tracks, trailing the bucks proved no easy matter. But after an 11-mile ride he overtook them, with their herder.

The ranger spent an hour in cross-examination, in broken Spanish, before the herder would admit that he had started the fire. Finally he acknowledged that in lighting a cigarette he had carelessly thrown a burning match into the dry grass. He had seen the fire start and had tried to put it out, but the wind spread the flames so rapidly that he had to stop and move his sheep out of danger. He then came back and made a second attempt to extinguish it, but it had grown beyond his control. Becoming alarmed, he had made off with his band to an open park lower down on the mountain and there camped for the night.

The ranger secured a complete affidavit from the herder, who, as soon as he could be relieved from duty with the sheep, was taken to Flagstaff and tried. The judge said: "$25 and 90 days," but suspended the jail sentence during good behavior.

A NEW KIND OF LICENSE WITH FOREST-FIRE CLAUSE

In the mountains of Virginia the huckleberry, the dewberry, the raspberry, and the blackberry, are the "meat" of all frugal souls who realize that Old King Frost spoiled the fruit crop for this year. "Recently," says the Forest Service of the United States Department of Agriculture, "one of these souls who has respect for the service came into the office of the supervisor, saying that he would like to have a permit to pick berries on Government land."

"He rather surprised us," the report states, "but after some figuring it was decided to give him a 'hunting and fishing permit' with 'gather berries' inserted. This hunting and fishing permit carries a clause that states, 'You are privileged to hunt and fish on Government land within the Natural Bridge National Forest, provided that you will report all forest fires and will assist in suppressing such fires as may occur within a radius of 5 miles from the point where you are hunting.' The permit was issued and the permittee departed on his way happy, but he started something.

"It was but an hour or so until another came in. 'Please, kin I git a permit to get huckleberries offen the mountain?' and that was the beginning of a steady stream. Everybody wants a permit, and everybody's gettin' it. In less than a week we issued 100 permits and most of these included the whole family. The roving small boy wants one for his very own and he is given it, but he is asked to read it 'out loud' before he takes it away and his big impression that he also takes away is that there must be no 'fire on the mountain.' This is not the midst of a fire season, but it can safely be said that the idea of protecting the forests from fire was never so generally and generously scattered among the people in and around the Natural Bridge."

Right Location of Hog Lot Important Measure in Fight Against Hog Cholera

When hog cholera sweeps through a neighborhood, causing the death of hundreds of animals, a simple precaution, as the proper location of the hog lot, may be the means of preventing infection. Where not to have the hog lot is pointed out and other suggestions on the control and eradication of this disease are given in a leaflet published by the United States Department of Agriculture. Hog lots should be located away from streams and highways. Free range, streams, irrigation canals, etc., help in the spread of cholera outbreaks. Don't visit neighbors' hog lots or allow neighbors to visit yours if they have sick hogs. Infection may be carried by teams and wagons from highways; don't drive into hog lots. Isolate for at least two weeks all new stock hogs and those just returned from exhibitions and sales. Don't borrow or lend hogs for breeding purposes if cholera is in the community.

Burn or Bury Animals That Die.

Burn to ashes or bury 4 feet deep all animals that die on the farm and the unused internal organs of slaughtered animals, since they attract dogs, which may carry infection. If cholera appears in the neighborhood, confine your dog and encourage others to do likewise. Immunize herds located dangerously near infected centers. Careful attention to the feeding and handling of the herd after immunization is an important matter. Mange, lice, and worms lower the vitality of hogs and render them more susceptible to disease.

If cholera appears in the herd, post warning notices so your neighbors will know about it, suggests the department. Have all susceptible hogs immunized at once by some one with special training and experience, preferably a competent veterinarian. Insist that the temperature of all hogs be taken at time of treatment and an increased dose of serum given to those showing a temperature of 104° F. or over. Confine all treated hogs to limited, clean quarters; keep on light, restricted diet for at least two weeks, and give plenty of pure drinking water. Antihog-cholera serum is not a cure, but when used as soon as cholera appears in a herd it seems to have a favorable effect on some animals in the very early stage of the disease. Don't rely on serum to cure sick hogs; it is primarily a preventive.

If the disease comes to your farm and runs its course, disinfect thoroughly afterwards all places where sick hogs have been. First, remove all infected manure and spread on fields inaccessible to hogs. Burn all litter, rubbish, and old troughs from infected pens and lots. Turn over portable hog houses, exposing the interior to sunlight. Thoroughly clean pens and buildings in which sick hogs have been kept, and disinfect by spraying with compound cresol solution, 1 part to 30 parts of soft water. In summer, pastures and lots are usually made safe within three weeks by the action of sunlight. Fill, drain, or fence off mud wallows. Disinfect and board up all runs underneath buildings. Destroy hogs that don't fully recover; they may carry cholera infection.

LARGER PLANTING OF MOST CROPS.

Plantings of 14 chief crops in 1921 cover 332,467,300 acres, according to preliminary estimates by the Bureau of Markets and Crop Estimates, United States Department of Agriculture. This area is 6,011,000 acres below that of 1920 and 2,093,000 acres below the average of that of 1915–1919. Had the cotton acreage of 1921 been as usual, these declines would have been converted into gains. Compared with the average of 1910–1914, the area of the 14 crops in 1921 is 19,536,000 acres larger, notwithstanding the fact that the cotton area is 8,810,000 acres less. The estimated acreage of the 14 crops in 1921 are as follows: Winter wheat, 38,721,000; spring wheat, 18,023,000; corn, 108,901,000; oats, 44,829,000; barley, 7,713,000; rye, 4,544,000; potatoes, 3,972,000; sweet potatoes, 1,186,000; flaxseed, 1,242,000; rice, 864,000; tobacco, 1,336,800; hay, 73,842,000; cotton, 26,519,000; sugar beets, 774,500.

Alsberg's Resignation as Chief of Bureau of Chemistry Regretted

In formally accepting the resignation of Dr. Carl L. Alsberg as Chief of the Bureau of Chemistry, Secretary Wallace wrote him as follows:

"Permit me, in formally accepting your resignation, once more to express my sincere regret that the Government and this department will no longer have the benefit of your services.

"Your nine years in the department have been fruitful years. You have attained a leadership in scientific work not alone in this department, but in the larger field seldom reached by men of your years. The tender of the important position which you have accepted is evidence of this.

"Your administration of the food and drugs act has been characterized by tactfulness, fearlessness, justice, and common sense, and you have, therefore, commanded the confidence and respect both of those who have come under the law and of the great public whose health you have so zealously protected. Your work in this field has been an inspiration which I hope will continue with us.

"It is not often that one attains such outstanding eminence in both research and administrative work.

"We shall all miss you here; especially I shall miss your wise and sane counsel from which I have profited very much in the rather trying task of undertaking to qualify for a difficult and important work. I wish that you might still be within call.

"Notwithstanding our regret that you are leaving the department, all of us here rejoice in the opportunity that has opened for you to pursue important research in a field in which you have such a great heart interest. We are expecting much of you; we are confident that you will make large and valuable contributions to the national welfare.

"I know that I express the feelings of everyone in this department when I say that our very best wishes go with you, and if at times you find that we can be of help in the work you are now undertaking, we shall expect you to call upon us with full assurance of a prompt and sympathetic response."

TICKY CATTLE BARRED FROM MARYLAND BY BOARD ORDER

Cattle infested with ticks are denied entrance into Maryland. The order prohibiting their shipment into the State for any purpose was issued recently at a regular meeting of the State board of agriculture, held in Baltimore, when the following quarantine was passed:

"On and after this date (June 11) no cattle originating in any area under Federal quarantine on account of southern, splenetic, or Texas fever shall be transported or driven into Maryland, and transportation companies are hereby notified not to accept shipments of such cattle when consigned to any point in this State."

As a result of this order the southern cattle quarantine pens at the Union Stockyards, Baltimore, Md., and J. A. Whitfield Co., Frederick, Md., have been dis-

mantled, cleaned, and disinfected, and ticky cattle are not permitted to be shipped to these stockyards. Similar action is being taken at the Union Stockyards at Benning, D. C., and at the Carolina Packing Co. at Wilmington, N. C., where cattle from tick-quarantine area will no longer be received. Henceforth cattle from the quarantine area can not be shipped into Maryland, North Carolina, or the District of Columbia for any purpose.

Such action, according to the United States Department of Agriculture, illustrates the ban which is continually being placed on ticky cattle. The market for tick-infested cattle is becoming more restrictive. States in which cattle ticks are still propagated have left to them only one recourse—that of making provision for tick eradication and thus enabling stock raisers to obtain a market for their cattle.

NEW FILM SHOWS HOW CROP REPORTS ARE SAFEGUARDED

When the good corn has come through all the stages from planting to the perfect ear, shall the farmer sell it, hold it, or feed it to his stock? This is the opening thought of a new motion picture issued by the United States Department of Agriculture, under the title, "Production's Pulse," and picturizing the crop reporting service of the Bureau of Markets and Crop Estimates.

The story shifts from "Hal Harrow," the farmer facing the problem of disposal of his corn crop, to the broader aspects of the crop reporting system. There are 215,000 voluntary crop reporters scattered over the United States, and 42 State field agents who study their reports, interview well-informed men in the States, watch crops from trains, watch the weather reports, crop diseases, and insects, and prepare special reports to be sent in to Washington.

The utmost precautions are used to prevent the leakage of crop information. These reports are put in a locked box in the office of the Secretary of Agriculture, together with those from township and county reporters. When computations are made on these reports, the tops of the sheets and the county names are cut off so the computers will not know on what States they are working, and placed in a locked box. The parts of the sheets are reassembled on crop-reporting day. The board meets in an inner room, and is locked in. A guard stands at the foot of the stairs to prevent anyone from going near the crop-reporting board while it is in session.

Expert computers assist the board, and multigraphers set up the report as the figures are approved. At the exact minute agreed on months in advance the Secretary of Agriculture and the Associate Chief of the Bureau of Markets and Crop Estimates release copies of the report to the newspaper men who are awaiting the signal for each to seize a sheet and run to the telephone to read off the figures to his paper. It is the work of minutes only to flash the crop news all over the country by telegraph.

The film shows scenes in a newspaper office receiving the story and setting up the type. At the very end "Hal Harrow" opens his R. F. D. mail box to take out his local paper which tells him that the "Year's Corn Crop Tops All Others," indicating the prevailing price he can expect if he sells, or the effect on the prices of beef cattle and hogs that eat corn.

"Production's Pulse" is in 2 reels. It is intended for distribution by the department and cooperating institutions. Interested organizations, such as farm bureaus and chambers of commerce, may, however, borrow the film upon application to the department, and certain authorized persons and institutions may purchase copies of it at approximately the cost of manufacture, $40 per reel.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended August 3, 1921:

Buying Farms with Land-Bank Loans. By L. C. Gray, Agricultural Economist, and Howard A. Turner, Junior Agricultural Economist. Pp. 27, figs. 6. Contribution from the Office of Farm Management and Farm Economics July 29, 1921. (Department Bulletin 968.) Price, 5 cents.

Presents a study based on the experience of 2,700 farmers who have borrowed money through the Federal farm loan banks, with a view of determining the extent to which the system provides for the needs of the landless farmer seeking to buy farm land.

Suitable for general distribution.

Service and Regulatory Announcement. B. A. I. No. 170. Pp. 61–68. July 21, 1921. Price, 5 cents.

Inventory of Seeds and Plants Imported by the Office of Foreign Seed and Plant Introduction, during the period from July 1 to September 30, 1916. Pp. 56, pls. 5. July 21, 1921. (Inventory No. 48; Nos. 43013–43390. Bureau of Plant Industry.) Price, 10 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct; not to the Department of Agriculture.

HARDY VARIETY OF AVOCADO IS DISCOVERED IN ECUADOR

A variety of avocado, or alligator pear, the fruit of which attains a weight of 18 ounces and the trees of which will stand some frost, has been sent to the office of foreign seed and plant introduction, United States Department of Agriculture, by Wilson Popenoe, plant explorer in South America, and buds of it are now growing in the department greenhouses. Curiously, the new avocado, hardier against cold than the ordinary West Indian and Guatemalan varieties, was discovered in Ecuador, a country situated on the Equator. The region, hitherto unknown as producing this fruit, is in what is known as the Chota Valley, 6,000 feet above sea level, giving a climate comparable to many regions much farther north, Most of the fruits of varieties of this Mexican race are small. This one has fruits comparable in size with those of the more tender races. Regions occasionally visited by a temperature of +18° F. have produced bearing trees of the Mexican avocado.

INCREASED PRODUCTION OF NAVAL STORES.

Compilation of reports from the individual producers and consumers of naval stores for the 1920 producing season by the Bureau of Chemistry, United States Department of Agriculture, shows that 488,548 casks of gum spirits of turpentine and 1,577,398 round barrels of gum rosin were made. There were on hand at the stills on March 31, 1921, the close of the 1920 season, 30,429 casks of spirits of turpentine and 327,055 round barrels of rosin.

During the calendar year 1920 a total of 34,932 casks of wood turpentine and 180,138 barrels of wood rosin and reclaimed rosin were made. The stocks at wood-distilling and rosin-reclaiming plants on December 31, 1920, were 7,616 casks of turpentine and 50,882 barrels of rosin.

On March 31, 1921, the consuming industries of the country had on hand or in transit to the plants a total of 30,528 casks of turpentine and 217,302 barrels of rosin. On this same date the stocks at the ports and in hands of large dealers and jobbers at the principal distributing points of the country were 74,686 casks of turpentine and 479,142 barrels of rosin.

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WILL ENFORCE PACKER LAW WITHOUT ARBITRARY POWERS

Cooperation of Entire Industry Essential to Important Enterprises, Secretary Tells Packers.

Necessary to Stabilize Live-Stock Production—Interests of Producers, Railroads, Commission Dealers, Packers, Retailers, and Consumers Closely Related.

Secretary of Agriculture Wallace, in an address to the Institute of Meat Packers at Chicago, August 9, spoke, in part, as follows:

"Since I have been at the head of the Department of Agriculture I have been glad, so far as possible, to meet with representative groups of people whose business is intimately related to the agriculture of the Nation. Contact of this sort is very necessary if the business of the department is to be administered in the most efficient way. The duty imposed upon it is to acquire and diffuse useful information on subjects connected with agriculture in the most general and comprehensive sense of that word.

Broad Field of Department Activities.

"If the department is to measure up to the obligation imposed by the law which created it, then it must do a great deal more than merely promote better methods of farming and live-stock production. It must take note of practically everything related both to the production and distribution of farm crops and live stock. Any effort to separate production and distribution must be purely arbitrary and indefensible. Intelligent and continuous production depends upon efficient and economical distribution. The utilization of crops is necessary to continued production.

"The production and sale of live stock is an essential part of American agriculture at the present time. Possibly long in the future the time may come when, because of a congested population and consequent pressure for food, our live-stock industry will be far less important than it is now. Under present conditions, and for a great many years to come, the business of producing and fattening live stock will be one of the most important enterprises connected with agriculture.

"We know that the larger the amount of our crops we feed to live stock the less we decrease the fertility of our land. We know also that the feeding of grass and forage and grain to live stock is one way of storing up surplus crops for future use. Still further we know that a liberal supply of meat is an essential part of the diet of our people. Therefore it is most important that we study the live-stock industry in its entirety, with the purpose of putting it on a thoroughly sound, profitable basis—on a basis that makes reasonably sure a fair reward for efficient productive effort rather than for speculative ingenuity.

"In the past there has been no conscious well-directed effort to put this great industry upon a sound business basis. Every party to it has worked in-

(*Continued on page 7.*)

MUSIC IS A BLESSING.

Have you music in your home?

Are you making any effort to supplement the splendid offerings of the phonograph record and piano player roll with home-produced vocal and instrumental melody?

Will there be a singing school in your community this fall?

"Good music in the farm home will contribute much toward a wholesome contentment and a happy family life," Secretary Wallace recently wrote in response to a request for an expression on the subject.

"Music is one of the good things of our present civilization which, in common with other blessings, is as readily available to those who live in the open country as to those who dwell in the cities.

"In the old days music was an important factor in rural community life. Many of us remember the old-fashioned singing school.

"Community singing should be revived generally.

"The township music teacher should be working in every community."

BIG SUPPLY OF DEGLET NOOR DATE PLANTS LANDS IN U. S.

Department to Send Offshoots to Government Garden at Indio, Calif., for Distribution to Growers.

Recent Shipments, Together with Importation of Saidy Variety, Last Year, Will Place Large Supply at Disposal of Producers for from 15 to 20 Years.

Two large shipments of small plants (offshoots) of the famous Deglet Noor variety of the date palm have just reached New York, 103 cases on the steamship *Silene* and 77 cases on the steamship *Urbino*, all consigned to the United States Department of Agriculture. These offshoots are being shipped to Los Angeles, and should reach the Government Date Garden at Indio, Calif., by the end of August.

To Safeguard Date Industry.

In order to safeguard the future of the date-growing industry in the United States and, in particular, to make Deglet Noor offshoots available to small growers, or to farmers who may in the future desire to grow dates, the Department of Agriculture obtained permission from the Algerian Government, in the spring of 1921, to import 1,400 offshoots of the Deglet Noor variety this year.

The department has entered into a contract with a firm of date growers of Indio, Calif., by which they undertake to root these offshoots, plant them out in permanent orchard form, and return to the department one-fifth of the offshoots produced on the imported trees. This firm also has agreed to sell three-fifths of the offshoots to bona fide date growers living in regions suitable for the culture of the Deglet Noor variety, who do not already have 100 trees of this variety, at a price not to exceed $7.50 each for the unrooted offshoots. One-fifth of the offshoots are to go to this firm as their share, in view of their having borne all the expenses of this introduction. Fur-

ther details as to the disposition of the offshoots produced by this new importation can be obtained by addressing the Office of Crop Physiology and Breeding Investigations, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

Date palms, unlike other fruit trees, can not be propagated by budding or grafting, but can be reproduced only from offshoots produced at the base of the stem in limited numbers during the first few years of the life of the mother tree. After the mother tree reaches the age of 12 to 15 years, no more offshoots are produced.

First Imported in 1900.

In 1900 the department made the first large importation of offshoots of the finest date that reaches the European market, the famous Deglet Noor variety, which grows in the oases of the Sahara in southern Algeria and southern Tunisia. For some years this variety did not ripen well in the southwestern United States, but finally, in 1910, methods of curing were perfected by the experts of the University of Arizona and the Department of Agriculture. Large importations of Deglet Noor offshoots were made by the Coachella Valley Date Growers' Association from 1912 to 1914, with the cooperation and help of the department. After the war broke out, the Algerian Government placed an embargo upon the export of date offshoots from Algeria, and no further importations of this variety could be made.

This importation of offshoots of the Deglet Noor variety, together with the importation made last year of the Saidy variety from Egypt, will place at the disposal of date growers of this country for the next 15 or 20 years a large supply of offshoots of these two standard varieties at very low prices. For the present no more importations are contemplated.

WATER MAY SPREAD CORN BORERS.

Entomologists of the United States Department of Agriculture combating the European corn borer have found on various occasions that water is not a complete barrier to the spread of the pest. A number of specimens were recently found on Middle Bass Island, in the western part of Lake Erie, several miles from either shore. They are uncertain whether worms floated to the island on cornstalks from an infested portion of Ontario or whether the flight was made by the grown insects.

Last year living corn worms were found on an island several miles off the coast of Massachusetts.

COVER CROPS IMPROVE SOIL—NOW IS BEST TIME TO PLANT

Used for More Than One Hundred Years by Good Farmers, Who Found Practice Profitable.

They Add Humus, Accumulate Nitrogen, Prevent Erosion and Loss of Plant Food—Varieties Adapted to Different Sections—Sow in Time to Secure Good Growth.

Planting cover or green manure crops is a matter which requires attention in September in most parts of the United States, says the United States Department of Agriculture.

Clover, vetch, and other legumes serve the triple purpose of adding humus to the soil, accumulating nitrogen, and preventing soil erosion. With some tender berry and fruit crops they also serve to protect the roots from severe winter weather. Outside of the nitrogen-forming plants, rye is largely used as a cover crop sown in the fall and plowed under in the spring to add organic matter to the soil. The cover-crop problem varies largely with locality, but for over-winter purposes there is one rule which is universal, and that is to get the crop in the ground in time to secure good growth before freezing weather.

A Practice of Long Standing.

The use of clover or some other legume to enrich the soil is generally considered a cardinal agricultural practice in the humid sections of the United States. It antedates by three-fourths of a century the monumental discovery that legumes store up nitrogen from the air. The belief that clover was a valuable improver rested first on experience, and later experience was substantiated by the discovery of the relation between the legumes and the nodule bacteria.

Other legumes, as the cowpea, the Japan clover and bur clover in the South, and crimson clover on the Atlantic coast, have come into use in the territory not well adapted to red clover. The various vetches are held in widespread favor, different varietites being employed according to climate and crop conditions.

When to Sow Cover Crops.

The time of planting and the best crop to use is a matter which local conditions must dictate. Along the north Atlantic coast it is considered best to get these crops in from the first to the middle of August, while in the extreme South the planting may be deferred to early October. In the extreme North hairy vetch is favored as a legume cover, or green manure crop, but rye is also largely planted. From middle Pennsylvania to the north Alabama line crimson clover gives good results. In the extreme South bur clover, vetch, and crimson clover are used, as well as velvet beans and cowpeas.

In the extreme Southwest, particularly with the orchardists of southern California, common vetch is sown in the fall and turned under as early as possible in the spring. Purple vetch is preferred, as it can be turned under one month earlier than other varieties, but until recently there has been extreme scarcity of seed, a condition which is being remedied through the efforts of the department in getting the seed grown in more northern sections of the coast.

Sour clover is used to a large extent, as the seed is cheaper than that of the vetches. Farther north on the coast common vetch gives good results, while east of the mountains in the Northwest hairy vetch is used because of its cold-resistant properties.

Broadcasting Seed Is Favored.

Methods with cover crops vary greatly. In the South they are customarily sowed between rows of cotton at the last picking. It is also common to sow the winter crop between corn rows before harvest. Wherever clean cultivation is practiced the soil is likely to be in shape for broadcasting the seed. If convenient, it can be harrowed in. In orchards a light harrowing or disking may be employed if the ground is free from sod. Care must, of course, be taken not to injure the roots. The crop is usually plowed under in the spring, but this is not always done with orchards. Data collected in all parts of the United States shows a general benefit from this form of agriculture.

Cover crops are of especial value to small gardeners and truckers, who often find it both difficult and expensive to obtain stable manure. They add the humus which is so necessary to maintain a good physical condition of the soil. Wherever there is a vacant place in the garden a few seeds of rye, vetch, clover, etc., may be sown and raked in. If a suitable rotation of crops is followed all parts of the garden may be covered with a green manure crop once every two or three years.

The stocks of turpentine and rosin in the storage yards at Savannah at the close of business on July 29 have been counted by the Bureau of Chemistry, United States Department of Agriculture, in cooperation with the Savannah Board of Trade, and found to consist of 7,317 barrels of turpentine and 75,552 round barrels of rosin.

Landowners Share in Free Distribution of Salvaged Picric Acid for Blasting

Farmers who share in the Government's free distribution of picric acid, salvaged from war materials, need not fear to use it as an agricultural explosive. All they will need to do is treat it with respect. The records are filled with the stories of men who forgot this precaution in handling dynamite and other dangerous things, yet dynamite and guncotton and nitroglycerin, and even the justly celebrated T. N. T. are perfectly tractable when proper consideration is paid to their peculiar forcefulness in resenting rough handling. Men who have associated for years with these explosives never—or almost never—forgot this supersensitiveness. It is worth remembering.

Made for Purposes of War.

The United States Department of Agriculture, through the Bureau of Public Roads, has about 12,500,000 pounds of this salvaged picric acid to distribute free among landowners to stimulate land-clearing operations. This explosive was used in large quantities during the World War. Because of its high cost of manufacture it can not be classed as an agricultural explosive; but as a salvaged war material it is recommended to farmers, who can obtain it at a lower cost than they would have to pay for commercial explosives. The only charges made by the Government will be for packing and transportation. The headquarters in each State will know how much these amount to for the different distances.

"Picric acid," says the department's announcement, "is a comparatively safe high explosive. It is more insensitive to shock or impact and to friction than are the commercial explosives, but is slightly more sensitive to shock than T. N. T. It is difficult to ignite, but will burn, at least in small quantities, without exploding. Theoretically, picric acid, in the presence of certain metals, will form dangerous compounds, but tests indicate that no danger will be involved in using it in soils containing lime or iron. It should not be exposed to fire or flame, and no metals should be allowed to come in contact with it. In ordinary handling picric acid is not poisonous; it can be used in open-air blasting without causing headaches or other ill effects."

The picric acid has been prepared for distribution by drying and packing in double-dipped paraffined cartridges weighing 6 ounces. These cartridges are packed in wooden boxes each containing 100 pounds of the explosive. One of these cartridges is about equal in strength to an 8-ounce cartridge of the commercial dynamites used for agricultural blasting. Picric acid is not affected by the ordinary temperatures encountered in this kind of blasting operations.

Picric acid should be detonated with a "No. 8" detonator or cap, and either the safety fuse, with which most farmers are familiar, or the electric current may be used. Caps are placed in the cartridges the same as in firing dynamite. These caps must be handled carefully, and should not be carried with the picric acid or any other explosive. For stumps and rock blasting picric acid is used the same as dynamite, the charges are placed in the same way, and the same number of cartridges are to be used. The electrical method of firing will be needed in blasting ditches, because the acid is so insensitive it will not "propagate."

Inquire of State Distributing Agencies.

The picric acid for distribution has been allotted to the States according to areas of cut-over lands therein. An agency will be designated in each State to cooperate with the department in the distribution in that State, and the agricultural college in each State has been asked to act in this capacity. All individual orders for the explosive should be placed with the State agencies. The Bureau of Public Roads will not receive individual orders or remittances. Such orders will be combined by the State agencies into carload lots, as less-than-carload shipments can not be made owing to high freight rates. Full information may be had by addressing the Bureau of Public Roads, Department of Agriculture, Washington, D. C.

FIVE CHILDREN CONTRACT TB. FROM MILK OF INFECTED COW

When an early writer first framed the remark that truth is stranger than fiction, it was the outcome of vivid observation. The statement became trite through repetition, but occasionally leaps into strong outline in fact. A case in point has just come to the notice of the United States Department of Agriculture.

The department, through its office of motion pictures, recently produced a film, Out of the Shadows, which told of tuberculosis creeping into a family through the unnoticed infection of a handsome herd of cattle. In the film the farmer disposed of his unhealthy animals and built on a sound basis.

Now comes a report through the Vermilion County Farm Bureau of a case in Edgar County, Ill., more striking than the picture story and without its happy ending. A farmer had his herd tested for tuberculosis and one cow reacted. Instead of destroying her, the farmer declared the test undependable, removed the ear tag, and sold her to his hired man for wages.

Of seven children in the man's family, five have contracted pronounced cases of tuberculosis. The other two did not drink this cow's milk. A pig and cat also contracted disease after drinking the milk. A warrant has been issued for the original owner on charge of breaking quarantine, and, it is stated, should one of the children die, he will be subject to a charge of manslaughter.

PRAIRIE DOG EXTERMINATION IN NIOBRARA COUNTY, WYO.

Prairie dogs infest 200,000 acres of farm land in Niobrara County, Wyo. This is a yearly loss to the county of at least $1 a dog. Another $50,000, it is estimated, is lost through pocket gophers and ground squirrels. A vigorous movement to rid the county of these unnecessary pests has been instituted under the guidance of the county agent and the State specialist of the Biological Survey, of the United States Department of Agriculture, and the State agricultural college.

The poisoning work is to be confined more or less to those prairie-dog "towns" in which all landowners will give their united support to help bring about a complete clean-up. A dog "town" of 160 acres about 9 miles west of Manville was the first to be cleaned up, then a large town west of Lusk. The latter was gone over once and 99 per cent of the prairie dogs were killed, but it is to be gone over again. A town of 25,000 acres east of Lance Creek is to be tackled next. It will probably take all summer to get it entirely cleaned up. An expert from the Bureau of Biological Survey of the United States Department of Agriculture is detailed to work with the landowners in this section for two weeks, and another will take the work up again in midsummer and stay with the job till it is completed.

Free bait is being furnished for the Government land, and county commissioners are helping finance the small sections where it proves necessary. One by one the prairie-dog towns of the county will be covered in this way.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

WEATHER REPORTS FROM GREENLAND IN PROSPECT

Officials of the Weather Bureau of the United States Department of Agriculture are observing with much satisfaction the progress made by the Danish Government toward the establishment of a high-powered radio station in Greenland. It is expected that when this station is completed weather reports from that continent will be rendered available that will be of great value in daily forecasting, not only in Europe, but in the eastern United States as well. They should also prove useful in forecasting the weather of the North Atlantic Ocean in the interest of shipping and aviation.

Meteorological stations have been maintained in Greenland for many years, and some important relations have been found to exist between atmospheric conditions there and in other parts of the Northern Hemisphere. For example, during the memorable cold winter of 1917–18 in the eastern United States pressure was very much above normal at stations on the west coast of Greenland. This fact was learned subsequently by examination of reports forwarded by mail to the Danish Meteorological Office in Copenhagen, copies of which were furnished the U. S. Weather Bureau. However, in so far as daily weather forecasting is concerned, all the vast area lying to the north of Canada and the United States between Alaska and Iceland is at present a terra incognito.

The station at Inglefield Bay, on the west coast of Greenland, in latitude 78°, is one of the most northerly weather stations in existence. Only two others are nearer the pole, both on the island of Spitzbergen, in practically the same latitude, 78° 2′. The development of the coal industry in Spitzbergen was responsible for the establishment of a radio station there, and this rendered possible the transmission of daily weather reports, which have been received from that remote region since 1913.

SHOW WIRELESS DAILY MARKET REPORTS ON FAIR CIRCUIT

Daily market reports by wireless will be a feature of the exhibit of the United States Department of Agriculture to be shown this year at State fairs and other exhibitions throughout the country. This is made possible by the use of up-to-date wireless receiving stations in charge of competent operators demonstrating the work of the Bureau of Markets and Crop Estimates in broadcasting market information over the country for the benefit of producers, the trade, and the public generally.

In addition to the wireless feature, the bureau's exhibit includes a display relating to the tentative wool grades and manufacturing; a transparency case, in which colored pictures of live-stock grades and meat cuts will be shown; a model of an Irish potato storage cellar; and a model of a United States standard refrigerator car designed in accordance with the requirements worked out by the department for preserving fruits and vegetables in transit and storage. A panel exhibit relating to standard containers is among the other exhibits of the bureau.

The first circuit of department exhibits opened at Sedalia, Mo., August 8.

PROBLEMS IN ROAD BUILDING CAUSED BY HEAVY RAINS

During July and August, cloud-bursts, which are practically very heavy thunderstorms, cause serious problems in road construction in Nevada and Utah. The Bureau of Public Roads of the United States Department of Agriculture has worked out several effective methods of protecting roads from these immense sudden flows of water after long dry spells. Where the drainage channels are well defined no great difficulty is involved in the design of the road drainage structures; but where the flood spreads out over a delta or a valley it is a problem so to locate the line and drainage structures that the latter will save the road from destruction.

In sections where the flood tends to spread out, a wide berm on each side of the roadway makes a substantial protection. The borrow pit provides material for the embankment and serves as a diversion drain. Sometimes a short concrete dip is used for the purpose of passing the water over the road in a comparatively wide and shallow flow instead of under it. A dip is simply a pavement extending the full width of the roadway and protected at each edge against undermining by a cut-off wall extending 18 inches below the bottom of the pavement. Instead of attempting to build up a grade for this pavement, so as to raise it above the flood water, the dip follows the grade of the wash, and the water passes over it in time of flood. Where the deltas are so wide and the country so undeveloped as to make the cost of a concrete dip excessive, the dips are surfaced with gravel and the downstream edge is protected by a concrete cut-off wall. In connection with these drainage dips a V-shaped system of dikes and ditches is used, converging toward the road if it is desired to lead the flow from two or more washes to a single dip, and diverging toward the road when it is better to split the flow of a single stream to more than one dip.

EXTRACT PHOSPHORIC ACID IN OIL-BURNING FURNACE

With the installation of a new high-temperature oil-burning furnace now being installed on the experimental farm at Arlington, Va., the Bureau of Soils, United States Department of Agriculture, will continue investigations into the extraction of phosphoric acid for fertilizer from phosphoric rock by the application of heat.

Experimental runs with an old furnace several months ago apparently demonstrated the practicability of the new method developed by department scientists of separating the phosphoric acid. The present commercial method is by the application of sulphuric acid to ground phosphate rock. It is not practicable for low-grade rocks and makes necessary the shipment of a large proportion of inert material with the phosphate. Early experiments in separation by heat were made with electric furnaces, but the expense seemed a serious obstacle to the introduction of the new method. It was found, however, that the petroleum-burning furnace could be made to do the work at much less expense.

Experiments will be continued with a view to establishing methods which will permit the use of much phosphate rock which now goes to waste, and also to a material reduction in freight rates on commercial fertilizers.

Silo-Filling Time Calls for Thorough Inspection, Repairs, and Preparation

With the approach of the time for filling the silo the United States Department of Agriculture calls attention to the desirability of pnttiug silos in shape and making plans for filliug which will save valuable time in the rush of work. Silos are a comparatively new feature of farm management, and iu many cases have been built less substautially than some of the older forms of farm structures.

Silos Need Occasional Attention.

Even the best constructed silo will need some attention occasionally. Concrete silos, which are among the most expensive of construction, reqnire the least attention as a general rule, but they will give better service if the inside is given a coat of special paint about once in three years. Paint for treating the interiors of silos is easily made of raw coal tar mixed with gasoline and applied with a tar brush. The roof should be inspected to see if it is watertight, and the doors may well be looked over. They need to fit tight.

Wooden silos, either stave or board construction, require additional attention. The hoops of stave silos should be tightened and any defective pieces of wood replaced. In wood silos, particularly the cheaper ones and those of home make, there is always the likelihood of inlets for air, which will spoil the silage. If the silo is so built as to require guy wires, these should be tightened to keep the building plumb and well braced to withstand winds.

Small Bundles Easier to Handle.

Careful attention should be paid to seeiug that the machinery to be used in harvesting and storing the silage is in working condition. Corn harvesters aud silo-filling machinery are frequently owned iu partnership by several farmers and, of course, arrangements need to be made in advance to see that all the owners get their corn in at the season when it is in best shape. In using the corn harvester the bundles should be made rather small. While this takes more time, the extra expense is more than offset by the ease in handling the bundles and feeding them into the silage cutter.

The corn ordinarily is hauled to the cutter on common, flat hayracks. The low-wheeled wagon is much preferable to the high one. An underslung rack can be constructed with comparative ease and will save much labor. The rack consists of two 4 by 6 inch bed pieces, 18 or 20 feet in length, bolted together at the eud to form a V. On top of these timbers is built a rack 6 feet in width. The bottom of this rack is about 8 feet long. The end boards are 4 feet high, built flaring so they do not quite touch the wheels.

The apex of the V is suspeuded below the frout axle of an ordinary farm wagon by means of a long kingbolt. The other ends are attached below the hind axle by U-shaped clevises. The materials needed in its constructiou are 80 board feet of 4 by 6 inch plank, 96 feet of boards 1 by 12 inches, 22 feet of lumber 2 by 4 inches, oue long kingbolt, two stirrnp rods, and bolts and nails.

Silage Cutter Needs to Be Strong.

If the silage cutter and lifting machinery have not been selected, every effort should be made to get machinery which has snfficient or excess capacity. The mistake is often made of getting an outfit that is too small, thus making the operation of filling the silo very slow and interfering with the continuous employment of the entire force of men. A number of satisfactory silage cutters are on the market. The chief features to be considered in a cutter are that it is strongly made and will cut fine.

Opinions differ as to the fineness to which silage should be cut. The length varies from ¼ to 1 inch. The latter is a little too long, as the pieces do not pack so closely in the silo, and they are not so completely consumed in feeding as the shorter lengths. On the other hand, the longer the pieces the more rapidly the corn can be run through the cutter. Fine cutting and thorough tramping are needed if it is desired to make the best quality of silage and fill the silo to its greatest capacity.

Two types of elevators are in use—the old-style chain carrier and the blower. The chain carrier requires less power, but is harder to set up and makes more litter, especially in wiudy weather, though some chain carriers are so inclosed as to keep the corn from blowing out. In usiug the blower type the blower should be placed as nearly perpendicular as possible.

Harvest Corn Before Fully Ripe.

Ordinarily, corn should be harvested for the silo about a week or 10 days before it would be cut for shocking; that is, when about 90 per cent of the kernels are dented and at least 75 per cent of the kernels are hardened so that no milk can be squeezed out. At this time the lower leaves on the stalk are turning yellow and the green corn fodder contains 65 or 70 per cent of moisture, which is sufficient for silage. Silage made from corn containing moisture enough for proper preservation is more palatable than that made from corn so mature as to require the addition of water.

ONE DOLLAR A DAY SAVED BY FIGURING DAIRY RATIONS

A series of 26 dairy feeding schools were conducted during the spring months in six New Hampshire counties by county agents, working cooperatively with the United States Department of Agriculture aud the State Agricultural College. Seven more are planned. Iu carrying out these schools lecturing and formal talk have been practically eliminated and the dairymen are seated at tables, where they figure out for themselves the composition of various rations and compute costs. Much enthusiasm has beeu aroused.

That the results are worth while is indicated by the statement of a Hooksett farmer who reported a saviug of $1 a day, while another who attended the school at Warner wrote the county agent that he is now saving $36 a month as a result of feeding a ration that he figured out there. The discussion provoked by the farmers figuring these rations gives a better understanding of the value aud cost of the various feeds available thau any amount of lecturing could possibly accomplish.

FARM NAMES MAY BE TRADE-MARKED.

The United States Patent Office recently approved and published in the Patent Office Gazette a trade-mark covering the name of the farm of an Iowa farmer. Ledru C. Willits, the farmer in whose name the trade-mark was issued, is a breeder of purebred hogs, cattle, and sheep. The name of the farm as trade-marked is "Hawkeye." To the knowledge of live-stock men in the United States Department of Agriculture, Mr. Willits is the first stockman, and probably the first farmer, to obtain a United States trade-mark for his farm. There is nothing in the law to prevent it, bnt apparently no one thought of it before. If a farmer uses his farm name and trade-mark as part of his selling operation in disposing of what he produces, the trade-mark protects the owner of the farm in its use in interstate commerce.

Several States have laws which anthorize the registration of farm names with the State authorities, but a trademark registered by the Government protects the use of the farm uame outside of the State in which the farm is located.

Tick Eradication Gains in Georgia; Fifteen Counties Will Be Released

Tick eradication has progressed so satisfactorily in Georgia that probably 15 or more counties will be released from Federal quarantine this season, according to a report just issued by the United States Department of Agriculture. During June, 814,565 dippings of cattle were officially supervised in the State, and in the counties expected to be released from quarantine only 300 tick-infested herds were found.

Taylor County Is Requarantined.

With the exception of one county, Taylor, there has been hearty cooperation in carrying on the tick-eradication work. The commissioners' court of Taylor County declined to cooperate with the State for the enforcement of dipping and quarantine regulations, and has refused to complete the work of tick eradication in herds, on premises and in localities held under local quarantine at the time the Federal quarantine was revoked in December, 1920. For this reason it has been necessary to requarantine Taylor County. The order, effective August 1, was signed by Acting Secretary of Agriculture Ball.

There is in effect in Georgia a State regulation which provides that all cattle going through the dipping vat shall be marked with paint at each dipping. This regulation has been of great assistance in facilitating tick-eradication work. Range riders, whose duty it is to pick up any cattle not marked with paint, are employed in each county. Undipped cattle are taken to the dipping vat and dipped at the expense of the owner, or if the owner can not be found, they are treated as strays and sold for the expenses incurred in their gathering and dipping. To this system, the Department of Agriculture attributes the satisfactory results in ridding the State of ticks. In fact, it is said there are fewer undipped cattle in Georgia, in counties in which tick eradication is being carried on, than in any other State.

The importance of freeing the South of ticks is emphasized by the increase in the number of markets which are being closed to ticky cattle. Following a resolution recently passed by the Maryland State Board of Agriculture, prohibiting the shipment of ticky cattle into the State for any purpose, the Department of Agriculture has issued a notice to Bureau of Animal Industry Inspectors to the effect that shipments of cattle from quarantined areas can not be received at the Union Stockyards, Baltimore, Md.; the J. A. Whitefield Co., Frederick, Md.; the Benning Union Stockyards, District of Columbia; and the Carolina Packing Co., Wilmington, N. C.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended August 10, 1921:

Swarm Control. By Geo. S. Demuth. Agricultural Assistant Bee-Culture Investigations. Pp. 47, figs. 13. Contribution from the Bureau of Entomology. June, 1921 (Farmers' Bulletin 1198).

In this bulletin the various phases of the swarm problem are discussed. Suitable for general distribution.

Soil Survey of Fayette County, W. Va. By J. A. Kerr. Pp. 30, fig. 1, map 1. (From F. O. Soils, 1919.) Price, 15 cents.

Service and Regulatory Announcements. Bureau of Chemistry. Supplement 115. (N. J. 9201–9250) Aug. 12, 1921. Price, 10 cents.

Experiment Station Record. Vol. 44, No. 8, June, 1921. E. W. Allen, Ph. D., Editor, Pp. 701–800. Price, 10 cents.

Same. Vol. 44, No. 9, Abstract Number. Aug. 10, 1921. Pp. 801–900. Price, 10 cents.

NOTE.—The Record is a technical review of the world's scientific literature pertaining to agriculture. It is not intended for general distribution and its free distribution is restricted to persons connected with the agricultural colleges, experiment stations, and similar institutions, and to libraries and exchanges. It can not be sent free to individuals having no official connection with public institutions. The Superintendent of Documents will receive subscriptions for this publication, which is issued in two volumes a year, 10 numbers each, at 75 cents a volume.

Index to the Market Reporter. Vol. III, January–June, 1921.

Monthly Weather Review. Vol. 49, No. 5. May, 1921. Pp. 271–326. Figs. 22, charts 13. Price, 15 cents a copy, $1.50 a year. Payable to the Superintendent of Documents.

Special articles: Temperature survey of the Salt River Valley, Ariz.; by J. H. Gordon. The cool breeze of the shadow of the cumulus; by W. J. Humphreys. Bibliographic notes on the temperature charts of the United States; by R. DeC. Ward. Level of constant air density; by W. J. Humphreys. A review of some of the literature on the sun-spot pressure relations; by A. J. Henry. Vapor pressure and humidity diagram; by R. E. Horton. A psychrometric chart for determining the dewpoint and relative humidity; by R. B. Smith. A new correction scale for mercurial barometers; by S. P. Fergusson. Relations between weather and mental and physical condition of man presented on the basis of statistical research; translation by W. W. Reed. Computing the cotton crop from weather records and ginning reports; by J. B. Kincer. Bioclimatic zones determined by meteorological data; by A. D. Hopkins. Indicator precipitation—stations for predicting stream discharge; by H. L. Stoner.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your requests definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct; not to the Department of Agriculture.

MANY FAMILIES REACHED BY CLUB WORK IN COWLITZ COUNTY

Boys' and girls' club work is taking a very important position in the extension program in Cowlitz County, Wash. The county club agent reports to the United States Department of Agriculture that they have 42 clubs organized in the 31 communities of the county with a total enrollment of 496, representing 291 families. The population of this county consists of 1,066 families, and the regular club organization with its exhibits, achievement days, and summer festivals reaches 720 of these families. As a result of the demonstration work carried on by the boys and girls under the direction of the county club agent, 67 per cent of the families have been reached.

VIOLATION OF GRAIN STANDARDS ACT.

Findings of the Secretary of Agriculture signed August 2, 1921, show a violation of section 5 of the United States Grain Standards Act by C. E. Kern, trading as the Kern Co., Omaha, Nebr. This company in fulfilling a contract with a St. Louis firm calling for No. 4 Yellow corn had delivered in St. Louis a carload of corn which had been graded "Sample Grade Mixed" at Omaha, and represented to the consignee that the corn was No. 4 Yellow as called for in the contract.

WILL ENFORCE PARKER LAW WITHOUT ARBITRARY POWER

(*Continued from page 1.*)

dependently and often in conflict with the other parties to the same industry. Consequently we have had alternate periods of overproduction and underproduction, resulting in periods of adversity and prosperity.

Ups and Downs in the Industry.

"The individual producers have blindly endeavored to adjust their production to price. Some few of them have succeeded in guessing the future fairly well. Large numbers have responded to periods of high prices by rapidly increasing their production, and this has resulted always in periods of low prices during which they have decreased production, and thus brought about another period of scarcity and high prices. In many ways the production of live stock, and more especially the feeding of cattle, has been a great gamble. This appeals to the sporting instinct of the shrewd producer but does not make for a stable industry.

"In periods of depression, when the live-stock producers are compelled to accept prices below the cost of production, there has been bitter complaint directed especially against you gentlemen who are engaged in the packing business. In periods of prosperity, when prices are good, these complaints subside, only to reappear during the next period of depression.

"We can never hope to adjust the production of live stock to the needs of the consumer with any degree of exactness. We can not control many of the factors which influence production; neither can we control all of the factors which influence consumption. The weather, for example, has a pronounced influence on production, while the amount of meat eaten is influenced very directly by business conditions, both at home and abroad, and no one has yet devised any plan by which we can accurately foretell these conditions. Consequently there must always be a considerable give and take in production and consumption, and for this reason the reward to the live-stock producer will fluctuate to some extent from year to year.

Live-Stock Feeding Maintains Fertility.

"But if we are agreed that the production and feeding of live stock is an essential industry which is needed to help us maintain the fertility of our land and help us store a part of our grass and grain for future use, and if we are agreed further that a liberal amount of meat is a necessary part of the diet of a Nation that has reached the highest state of civilization yet attained by man, then all who have anything to do with the live-stock industry, whether producers, feeders, packers, or in whatever relation, should cooperate to put this great industry on a thoroughly sound business basis, removing so far as possible the causes of violent fluctuations and uncertainties.

"We ought to work toward the end of getting the industry on a basis which will give us a supply fairly well adjusted to the normal needs of the consumer. It is not possible to relieve the producer entirely of the risks of weather and disease and of unusual business conditions which affect consumption and, therefore, affect demand, but surely the genius which has built the great enterprises of the United States in so many other fields of endeavor can, if applied to this great problem, do much to better adjust supply and demand and in part iron out the violent fluctuations which at times are so discouraging.

"When we look at the live-stock industry in the largest way we see that there are a number of very important factors engaged in it. There is the producer on the farm; there is the railroad which transports the live stock to the nearest packing plant; there is the stockyards; the commission merchants who act as intermediaries between the seller and the buyer; the packer; the retailer; and finally the consumer. Now, if any one of these factors fails to function efficiently all of them are affected in one way or another. If the producer fails to produce up to the normal need, the business of the railroad, the stockyards, the commission men, the packer, and the retailer all are affected adversely and the consumer must pay a price which at times he can ill afford to pay.

Important Factors in the Industry.

"If the consumer fails to eat meat regularly and in normal quantities, either because of inability to buy or because he is led away for the time by some vagaries of the dietitian, all of the other parties to the business suffer, and especially the producer who, because of the decreased consumption, is compelled to take less for his live stock than he is fairly entitled to receive. The ideal condition would be that in which there is a production which fully meets the normal demand and at a price which yields a fair profit to every one who performs a legitimate function in the business, avoiding overproduction which so greatly discourages the producer because of the resulting low prices, and underproduction which imposes a hardship on the consumer through unreasonably high prices.

"It is to the interest of the Nation, therefore, and to every party to this great industry that an effort should be made to establish and maintain it upon a sound business basis. All the parties who have anything to do with it should cooperate for the common good. Now, if there is to be cooperation of the right sort every party to this business owes it to the others to discharge his function intelligently, economically, seasonably, and with due regard to the interests of all.

"The function performed by the packer is clearly the most important as we follow the stock along on its way from the producer to the consumer, and also he has the most difficult task to satisfy all parties at interest. In times past perhaps the majority of producers have been disposed to look upon the packer as furnishing the ultimate market for their live stock, and have therefore held him responsible for the price paid, especially when that price was lower than the producer thought he ought to have. The consumer, on the other hand, has been accustomed to look upon the packer as the original source of supply, and therefore has held him responsible, both for the healthfulness and quality of the meat, and for the price as well, and especially when the price has been high.

The Packer Is a Manufacturer.

"Neither producer nor consumer has always fully recognized the packers' true function, which is that of a manufacturer whose raw material is live stock and whose finished products are meat and its by-products, edible and inedible, and whose prices, both the prices he pays and the prices he receives, are necessarily governed by supply and demand, which he can neither control nor anticipate with certainty. As manufacturers, the packers, especially those who handle such a large percentage of our live stock, have attained a degree of efficiency which long has commanded the admiration of the business world. Such criticism as has come upon them has grown out of the fear that the concentration of such a large and essential business in few hands gives a dominance in the business which can be, and which some people believe in times past has been, exercised to the injury of the other parties to it.

"The retailer handles the meat in small packages and deals direct with the consumer. Upon the efficiency with which he conducts his business and the fairness with which he adjusts his prices depends very greatly the welfare of the entire industry. He can do much to influence consumption.

"On the assumption that this live-stock and meat industry is one of na-

tional importance, entirely aside from the selfish interests of the various parties to it, I conceive it to be the duty of the Department of Agriculture to do what it may to promote the industry and to help everyone connected with it to function efficiently. In times past the department has given much attention to the improvement of the quality of the live stock, to better methods of growing and feeding, to fighting animal diseases, and to cooperating with every agency interested in production.

New Responsibilities for the Department.

"Apparently the department very soon will be brought into much closer relation with the marketing, packing, and distributing end of the industry and charged with much larger responsibilities than heretofore. The bill designed to bring the stockyards, the commission merchants, and the packers under Government supervision, through the Department of Agriculture, passed the Senate last week and is expected to pass the House at an early date. It provides for Government supervision, and gives the Secretary of Agriculture large discretionary powers.

"There is no need now to speak of the reasons which led Congress to enact this law. I know that most of you have not favored it and have felt that, while neither Government ownership, operation, nor control is contemplated, it would be an unwarranted interference with private business. I think I can understand your feelings in this matter and your very natural apprehension concerning the manner in which it will be administered. The power placed in the hands of the supervising agency is very great and could be used to cause much annoyance and unnecessary expense to those who come under the law. I am all the more conscious of this because for the time being I happen to be the one who is charged with this responsibility.

"Therefore I wish to make it perfectly clear that without prejudice of any kind my whole effort will be to administer this law in a constructive way and with the purpose of promoting the live-stock and meat industry and safeguarding the legitimate interests of everyone connected with it. There will be no arbitrary or offensive exercise of power. There will be no interference with the free operation of legitimate business nor imposition of burdensome and unnecessary rules and regulations. Discretionary powers will be used fairly and with due regard to all concerned.

"I assume to start with that it will be the intention of everyone to observe the law and refrain from practices which may be forbidden. I shall expect to counsel freely with all interested parties in setting up the administrative machinery and making the necessary rules. I shall approach you with the feeling that you will act in openness of mind and good faith in the whole business and shall hope that you will grant to me what I so freely yield to you. No matter who may be Secretary of Agriculture, I hope and believe that the relations between him and the people who are in the live-stock and meat industry will be of the helpful, cooperative sort. That there may be difference of opinion at times is to be expected; but when the heart is right such differences can be adjusted without that bickering and recrimination which impairs public confidence and is so distressing to the right-thinking man.

Plans for Extending Foreign Markets.

"You will be interested in some plans the department is now making with the hope of extending our foreign markets for meat and meat products. Among the appropriations made available July 1 was one for not less than $50,000 to be used in foreign-market work. The department has recently arranged to send to Europe a man who has already had considerable experience in charge of the export branch of one of the independent packing companies, and who has had more than two years' actual residence as its selling agent in northern Europe. His mission will be to make a thorough investigation of present and prospective foreign markets for American meat and dairy products.

"He will inquire into European production, stocks, imports, exports, demand, and the factors affecting or influencing trade in American meat and dairy products. He will be expected to arrange for the prompt and regular flow of information from the principal market centers of Europe to the department in Washington, from which it will be transmitted to interested parties. His headquarters will be in London, but from time to time he will visit the important trading centers of northern and central Europe, personally interviewing men informed as to the meat trade and arranging for trustworthy reports from local representatives. In this work the department will hope for the hearty cooperation of all meat packers who have foreign connections and will strive to serve all who have or wish to make such connections.

"In addition to this special agent for meat and dairy products the department has retained Prof. George F. Warren, of Cornell University, who is giving special study to the extension of our foreign trade in all agricultural products. Dr. Warren will visit the principal countries of Europe during the fall and winter months, making a study of sources of information and of market conditions.

Cooperate with Department of Commerce.

"In this foreign-market work the department has the assurance of complete cooperation from the Department of Commerce both in collecting information and for special investigations. One of the duties of both Dr. Warren and Mr. Squire while abroad will be to form personal contacts with the commercial attachés and with all American agencies to the end that there may be complete cooperation.

"While doing everything possible to extend foreign markets for all farm products, the department realizes the special importance of extending our export trade in meat and dairy products, because these products afford the best outlet for marketing our surplus grain and forage, and a free outlet for our surplus will make it much easier to maintain our live-stock industry on a sound basis."

CONTROLLING DAMPING-OFF IN FOREST NURSERY STOCK

The best method of controlling damping-off in forest nursery stock appears to be the disinfectant treatment of the seed bed, say specialists of the United States Department of Agriculture, who have recently completed a series of investigations to work out control measures. A report of their investigations has just been published as Department Bulletin 934, Damping-Off in Forest Nurseries. Sulphuric acid, they say, has been found very useful for conifers, as they are apparently especially tolerant of acid treatment.

In most nurseries, if the minimum effective quantity of acid is used, there is no need of any special precautious to prevent injury to the seedlings. The minimum quantity must be determined for each locality, for the specialists say that no single treatment can be found that can be universally applied without change in details.

The most serious losses in conifers, according to the bulletin, are from the root-rot type of damping-off, which occurs after the seedlings appear above the ground. This type of the disease is most serious under extremely moist atmospheric conditions. The type of damping-off which appears later when the stems become too rigid to decay easily is ordinarily less important than the earlier type. Seedlings more than two months old are, as a rule, able to recover from infectious. The specialists believe that thick sowing favors the disease, and that soil acidity is in general unfavorable to it.

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THIRTY-THREE STATES JOIN MOVE TO SAFEGUARD FORESTS

Twenty-five Share in Federal Cooperative Protection Fund by Maintaining Fire Fighting Systems.

Public Backing Being Given to Legislation for Security and Use of Remaining Timberlands—Pennsylvania Leads with Appropriation of $1,870,000.

Probably never in the history of this country has there been such marked interest in forest preservation by State legislators as at the present time, report officers of the Forest Service, United States Department of Agriculture. No less than 33 States have now provided for some sort of forestry activities and 25 of these share in the Federal cooperative forest protection fund, allotted to States maintaining an effective fire detection and suppression system. Two others have applied recently for such assistance. Public backing of the movement to preserve the remaining forests from destruction by fire, and to put idle forest lands to work growing trees, is becoming widespread, and the effects of the popular demand for action is shown clearly in the State laws passed this year.

Pennsylvania Leads States.

Pennsylvania, under the direction of Gifford Pinchot, the new Commissioner of Forestry, leads all States in forest activities. The biennial appropriation passed by the legislature and approved by the governor carried $1,870,000, an increase of $863,300 over the appropriation of 1919; $1,000,000 of the total is for fire protection. The legislature also passed an act empowering the Federal Government to acquire lands on the watersheds of navigable streams within the State, by purchase or condemnation, and to control and regulate such reserves.

The Minnesota Legislature was more generous with the State forestry board than ever before. A total of $275,500 for general forestry work was appropriated for the next two years, of which $125,000 a year is for the fire protection. The last-named sum was augmented by an additional allotment of $44,000 from the State board of relief. For the equipment of a flying field near the Twin Cities, $45,000 was voted. This provision was to meet the offer of the Federal Government to furnish the service of 12 planes if the necessary hangars and flying field were provided. While the primary purpose of this agreement is to supply aerial mail communication, the planes will be able also to render effective service in "spotting" forest fires.

In California, where there has been much favorable sentiment toward forestry for many years, the legislature voted a substantial increase in appropriation for the State board of forestry, for the biennial period beginning July 1. For the prevention and suppression of fires $75,000 was appropriated; for general

(Continued on page 7.)

COW-TESTING ASSOCIATIONS GROW FROM 1 TO 452 IN FIFTEEN YEARS.

Fifteen years ago a small group of farmers in Michigan entered upon what many of them probably considered a very doubtful experiment. It was the organization of an association for testing their cows, in respect to how much feed they ate and how much milk they gave; an association such as the farmers of Denmark had originated about ten years before, and which various other European countries had copied.

The experiment, as studied by the United States Department of Agriculture, proved a success, however, and now the number of such associations has grown from 1 to 452. It is notable that some States which took up the idea at an early date have stuck to the movement and organized more and more associations, while others continue with only a few. Most States increase the number of their cow-testing associations as time goes on and the Department of Agriculture is fostering the work.

The lack of testers during the war caused a setback to the movement, but recovery from this has taken place, and the number of associations in the country is now much larger than it was before the war.

PLANTING AND CARE OF STREET TREES, A MUNICIPAL FUNCTION

In Congested Centers Trees Have Generally been Sacrificed to the Alleged Interests of Business.

Plantings on a Street Should Be Confined to a Single Variety—Overhead Wires the Means of Destroying or Mutilating Many Fine Specimens.

One of the characters in an early-day American romance of the time when the Stamp Act was causing all kinds of trouble is recorded as declaring that New York never would be a real business city because Broadway and Maiden Lane were lined with trees. The Van Vrooms, the Stuyvesants, the Artavelts, and other early settlers of the country saved fine trees about their homes, on the village greens, along the country roads, and in the fields. But one will see no trees nowadays on Broadway, and Maiden Lane has been transformed from the pleasant, tree-bordered region of Dutch homes with flower gardens into the busiest wholesale jewelry district in America, if not in the world.

Business Streets Bare of Trees.

Beauty and comfort gave way to the inroads of commerce, not only in New York but in most of America's great cities, so that to-day trees in a business street are a rare sight. There are elm-shaded villages in New England; maple-shaded towns in New York and the Ohio Valley, and there are oak-tree streets to be seen in the Southeastern States, but for the most part this refers only to small towns or cities—never to the congested centers of population where they should have been preserved. Washington, the National Capital, is one of the exceptions, and even there the plantings were not always wisely arranged.

The tree growth on the streets of the average American town or city is ragged and unkempt in appearance, while that of the suburb or small village often is not much better unless the planting has

been done under municipal control, and the plantings on a street have been confind to a single kind of tree. The telegraph, the telephone, the electric light, and the trolley car have added their share toward the mutilation or destruction of the good trees that were in existence at the time of their coming.

Faulty methods of pruning have caused disfigurement and ruin. "Success follows the careful planting of good trees which are given adequate protection and timely attention," says Farmers' Bulletin 1209, Planting and Care of Street Trees, just issued by the United States Department of Agriculture. "Every tree should be trained to its proper form while young, so that severe pruning will not be necessary later. Guards are necessary, too, for several years.

"To the mutilation of severe pruning has been added the destruction of many trees in centers of business because they excluded a little light, or made the store less prominent, or were somewhat in the way of using the sidewalk for merchandise."

Unpaid Commission Does Best Work.

The bulletin insists that providing shade on city streets is as much a municipal function as providing lights or sidewalks and should, therefore, be cared for by public officials. Probably the most efficient way of arranging for proper supervision, it says, is through an unpaid commission of three or five members which in turn employs an executive officer. Methods of organization are described, and numerous illustrations show how trees should be planted. There are chapters also describing pruning, spraying, transplanting, and other subjects of importance to every town or city whether it has trees or wishes to have them. The bulletin may be had free upon application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Hay Shippers Frequently Meet with Loss in First Offerings of the Season

Every year when new hay begins to be marketed, reports from several central western hay markets show that much of the new hay arriving is hot and out of condition, and must be sold at a heavy discount under the price quoted for No. 1 hay. There are a number of causes, but the Bureau of Markets and Crop Estimates of the United States Department of Agriculture believes the principal one is that the hay is baled and shipped before it has cured sufficiently and while it contains too much moisture.

Baling Newly Cut Hay Is Risky.

It is the custom in some sections to bale the hay from the windrow or cock, in order to avoid the expense of stacking or putting in the mow. It is almost always true that the first new hay shipped to the various markets is baled in this way. In most of the timothy-producing sections weather conditions are such that it is not safe to allow the hay to remain long in either the windrow or cock, if the best quality of hay is to be obtained. Local showers or heavy dews, followed by a hot sun, will soon cause it to bleach and deteriorate. It is, therefore, the practice to bale just as soon as, in the judgment of the producer or shipper, the hay can be safely shipped. This is frequently entirely too soon for the conditions under which it is marketed.

The movement of hay from a dry to a humid section, or from a cool to a warmer one, increases the probability of heating. Tight baling and close packing in the cars are contributing causes, and apply to alfalfa and prairie hay as well as to timothy.

The easiest way to avoid the losses caused by hay getting out of condition is not to ship new hay until it has gone through the "sweat" and becomes properly cured in the mow or stack. The premiums usually offered for early shipments of new hay are very inviting, however. The first new hay, if in good condition, often sells near the price of old hay which, as the season draws to a close, is frequently high. The new hay is heavier, too, and the shipper profits from the sale of the water in it, even though it sells below the price of old hay. The chance of getting these premiums causes many shippers to take the risk of the losses that continually occur. It is very doubtful, however, if the premiums equal the losses during the first week or two of the movement.

Department Offers Suggestions.

While the shipment of new hay is not advised until it is cured so as to contain not more than 14 or 15 per cent moisture, a few suggestions are offered by the Department of Agriculture, which, if followed, will tend to eliminate some of the losses frequently incurred. The principal ones are:

Press the hay in the bale as loosely as possible to get the minimum weight in the car.

Load hay in cars with air space about the bales; standing the bales on end is considered a good practice.

Ship first hay to near-by markets only.

Hay shipped into low or humid territories should be drier than when shipped into dry or high sections.

Provide ventilation for cars when possible.

Bill cars so that no delay will occur in handling or unloading at destination.

ANNUAL WHITE SWEET CLOVER SEED SHOULD BE CERTIFIED

Last fall there was probably little more than 200 bushels of annual white sweet clover seed in existance, practically all grown in Iowa, Michigan, or Alabama. Nearly all of this seed was used for increase purposes so that there is at present a considerable acreage growing. There are four or five large producers with acreages in Iowa, Michigan, Ohio, Texas and Alabama, but besides these there are hundreds of farmers with from one to several acres from which they expect to harvest a crop this year, part of which will be offered for sale.

The attention of these smaller growers is called to the fact that buyers will desire to be sure that the seed offered them next winter is that of the annual, and not that of the biennial, white sweet clover. The seeds of the two can not be distinguished and it is quite possible that either by accident or design the cheaper seed of the biennial type may be sold for the more expensive annual plant. For this reason the United States Department of Agriculture urges prospective buyers to look carefully into the origin of every lot of seed offered. Growers of annual sweet clover seed this year should be able to state where they got their stock seed, when it was seeded, when it blossomed, and when it was harvested. If any responsible State official can add his assurance that the field is true annual such a statement would be worth getting.

The large growers are naturally preparing to meet all demands for evidence as to the purity of their stocks. Unless the smaller growers can also give adequate assurances regarding the authenticity of their seed it may be harder to sell and they may have to accept prices in line with those paid for common sweet clover seed. All such growers are advised to take up this matter with their farm bureaus, county agents, or State experiment stations and protect themselves so far as possible.

RELATION OF COUNTY AGENT TO PEOPLE

By A. C. TRUE, Director, States Relations Service.

THE county agricultural agent is a public official whose business it is to make available in practical form the knowledge of agricultural science as developed by the State experiment stations, the United States Department of Agriculture, and the results of the best farm practice. He is expected to show by field demonstrations, publications, and otherwise the application of such knowledge to local farm conditions.

Demonstrate Improved Farm Practices.

The advantages of improved farm practices as demonstrated on the most successful farms in the county where the agent is employed are called to the attention of farmers in his territory. With these demonstrations before them, individual farmers are able to determine intelligently the extent to which they will apply the lessons of the demonstrations conducted by the agent.

The county agent is an officer of the State college of agriculture and the United States Department of Agriculture. He may also be employed in cooperation with the county government or the county farmers' organization contributing to his support and aiding in his work. He is not, however, expected to act as the business agent of the individual farmer or of groups of farmers in carrying on commercial transactions. He is not in any sense a hired man, operating the farmer's owu farm enterprises.

The subjects on which the county agent may give demonstrations or advice are as varied as the needs of the farm population in his county. It is his duty to demonstrate the applicatiou of agricultural science to soil management and building, to the control of plant diseases and insect pests, to the introduction of better varieties of farm crops, and to improvement in methods of feeding, breeding, and care of farm animals. The economic management of the farm as a whole to yield the largest net returns, the study of systems of marketiug local farm products, advice on the purchase of farm supplies, cooperatively and otherwise, are broader phases of his diversified work.

Definite Plan of Work Is Important.

As a cooperative employee of the United States Departmeut of Agriculture, the State agricultural college, and the county, the county ageut's first duty is to inform himself as to how he can intelligently serve all the people of his county. He must get a general idea of couditions, of the local system of farming, the kind of people he is to work with, and a knowledge of soil conditions. He must meet with representative farmers of the county and with them formulate a defiuite plan of work in regard to their more urgent problems.

As he must endeavor to reach as mauy of the people as possible, and help them raise the average standard of farm practices, there must be a number of concrete demonstrations well scattered over the county from which definite reports of results can be secured. The county agent's strength of leadership is demonstrated by his ability to perform his duties without drifting into superficial work; to maintain a well-balanced program; to distinguish betweeu essentials and nonessentials under existing conditions; to get people to help themselves, aud to cooperate with them in such a way as to secure their assistance and to assist them in making and carrying out the general program.

While the county ageut's position and duties make him the leader in agricultural matters, he can not fairly be expected to be an expert ou all agricultural subjects. He should have a sufficient general knowledge to advise on the leading questions, and he should know on what specialist to call for help on technical or difficult problems that may arise.

Those in charge of cooperative extension work, both in the United States Department of Agriculture and the agricultural colleges, believe that the agents should assist the farmers of the county with every problem connected with their business, from the preparation of the soil to the marketing of his products. It is uatural for the farmers to look to the agent as their agricultural adviser and leader in marketing as well as production and to expect him to give them information on questions of harvesting, grading, and packing. For the past two years the marketing problem has been the most vital one to all branches of agriculture. It is believed that it is legitimate and proper for the agent to encourage cooperative marketing, to obtain information as to what products should be worth, where the best markets may be fouud, and how these markets may be reached at the least expense to the producer.

Not Business or Financial Agent.

It would not be proper for the county agent personally to engage in the buyiug and selling of the farmer's products, to handle funds in the transaction, or to hold any office in marketing or other farmers' organizations; but there should be no question of his right to furnish the very best information and to encourage in every way possible the farmers who do these things for themselves through some business manager or cooperative association.

SHIPPING ASSOCIATIONS ARE SUCCESSFUL IN ILLINOIS

The organization of shipping associations has been successfully assisted by the couuty agents in Illinois. The work has proved popular and advantageous to the farmers. New associations were organized during the second quarter of this year, ending June 30, in Henderson, Hancock, Pike, Randolph, Marshall, Putnam, and Kendall Counties. The results shown by the shipping association in Adams County are typical. Sixty-two carloads of live stock were sent to terminal markets during the month of April. These shipments included 3,957 hogs, 343 cattle, and 25 sheep, belonging to 382 Adams County farmers. The total sale price for this shipment was $87,000. This was an increase of $23,000 in sales value over the same month last year.

The average price per hundredweight this year was considerably lower thau last, and it was especially gratifying that this gain in sales was made by increasing the shipment to 36 more carloads than last year.

The Henry Couuty Shipping Association shipped altogether $3,482,076.25 worth of live stock during the year ending March 31. Last year the total was $2,859,153.42. The increase in total sales indicates general satisfaction with the cooperative plan of shipment.

DEPARTMENT CITES GRAIN COMPANY UNDER FRAUD ACT

Findiugs of the Secretary of Agriculture just issued showed several violations of section 5 of the United States grain standards act by the Scroggins Grain Co., Minneapolis, Minn. Investigation showed a practice on the part of this firm to quote prices on wheat according to the Federal grades with the statement added "no dockage."

When the wheat was inspected by licensed inspectors, it was found to contain from 1 to 5 per cent of dockage in the different cars. Notwithstanding this, the Scroggins Grain Co. disregarded the notation of dockage on the certificates in representing the grade of the wheat to their consignees aud invoiced the same at the price agreed upon in the contracts.

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John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

AID GIVEN BY DEPARTMENT IMPROVES WOOL MARKETING

Wool received at concentration points for pooling is in much better condition than that handled last year, according to officials in charge of wool pools, who state that the improvement is due largely to the demonstrations conducted last season by the United States Department of Agriculture, showing the proper manner of handling and preparing wool for market. The owners of wool clips who were penalized in 1920 on account of sisal twine, burrs, or seed have taken precautions this season to see that their product is free from objectionable foreign matter and in excellent condition when received at the concentration point. The percentage of untied fleeces is much smaller than in 1920, with a considerable number of fleeces box tied.

Especial emphasis has been placed on the work of the expert graders in demonstrating to producers and others the value of grading the wool clip. The subdivisions within the grades established enable the producers of long-staple wool to obtain full value for their clip on the basis of grade. In addition to the regular grades, provision also is made for the various kinds of defective wool which constitutes rejects. The wool growers are realizing the value of grading and the necessity for the elimination of rejects from their wool in order to obtain the maximum return for their product.

One large wool pool in the Middle West, which assembled and graded 340,000 pounds of wool in 1920, reports that 400,000 pounds have been received to date this year. One of the largest cooperative wool growers' associations in the Northwest has increased its membership from 1,600 to 1,700 in the last 30 days and reports that more than 1,500,000 pounds of wool has been received at its concentration point.

FIND WEATHER REPORTS HELPFUL IN HANDLING BEES

Weather reports issued by the United States Department of Agriculture have been used with notable success by a Wisconsin beekeeper in the handling of bees in fall and spring. By keeping in touch with the local office of the Weather Bureau at Milwaukee he learns when weather is likely to be mild enough for late flights of bees in the fall before they are put into winter quarters and for early release in the spring.

Honeybees develop dysentery and other serious disorders if kept in the hive too long in winter. This is due to the fact that they will not void their faeces while in the hive. It is, therefore, important to shorten the season of housing as much as possible without running into danger of freezing weather or high winds which scatter the colonies. It is highly desirable to give the bees a cleansing flight just before housing.

This apiarist has found that he can expect a satisfactory temperature for flying between November 5 and November 20 practically every year. In a recent autumn there was such temperature November 17. As the official forecast was for much colder weather, he housed his bees November 19. The temperature dropped steadily and reached zero December 1. The month of December was the coldest in 46 years. Other beekeepers, not using the forecasts, left their bees out until about the middle of December, with resulting damage.

Last spring he received a special forecast April 1 announcing that the following day the temperature would be satisfactory for flight. He set the hives out that night, and the following day the temperature went up to 71° and the bees had a "glorious cleansing flight."

NEMATODE DISEASE OF WHEAT NOT SPREAD BY BIRDS

Recent investigations conducted by the United States Department of Agriculture have shown that the English sparrow is a benefactor to humanity at least in one respect. It is able to kill nematodes parasitic on wheat.

In this nematode disease of wheat, the parasitic worm forms galls which take the place of the normal kernels. During the early development of these galls the sparrows seem to have a special liking for them. At first it was suspected that the sparrow might spread the infection in this way, but it was found that the sparrow's digestive apparatus sufficed to kill the nematode.

The nematode disease of wheat occurs in Virginia, West Virginia, and North Carolina. It also attacks rye, emmer, and spelt. The disease becomes serious if precautions are not taken for its control. Fortunately practicable control measures are known. They necessitate (1) the use of seed free from nematode galls, (2) sowing such clean seed on nematode-free land, (3) keeping wheat or other susceptible crops off infested fields for at least one year, and (4) keeping nematode-infested straw and manure off land to be used for wheat within a year.

The nematode is not able to move laterally in the soil by its own efforts except for very short distances. Because of this fact the disease can be effectively controlled by the farmer on whose land it may occur.

No wheat variety adapted for culture in the infested sections has been found resistant to this disease.

SEARCH FOREIGN COUNTRIES FOR PARASITES OF CROP PESTS

Renewed attention is being paid by the United States Department of Agriculture to the introduction of so-called friendly insects—parasites which destroy serious crop pests without themselves doing damage to human interests. Two different expeditions to that end are now in progress.

Thomas R. Chamberlin, of the Salt Lake City laboratory for cereal and forage insect investigations, is now en route to the European parasite laboratory at Hyères, southern France, and will study the insect enemies of the alfalfa weevil for the purpose of collecting and shipping to Utah and other infested territories the natural enemies of this serious pest. Prof. H. F. Wickham, of the Idaho State University, is in Mexico on temporary appointment from the Office of Truck Crop Insect Investigations and will search for parasites and other natural enemies of the Mexican bean beetle, which is doing serious damage in the Southeastern States. Prof. Wickham started from Parral, and will also work in southern Mexico and in Guatemala if opportunity permits. He is accompanied by Mr. M. M. High, who will cooperate in this investigation, and will search also for natural enemies of the Colorado potato beetle and of the sweet-potato weevil.

NEW BUREAU OF ECONOMICS TO SERVE FARMERS

By HARLAN SMITH, Director of Information.

A FAR-REACHING step in the reorganization of the economic activities of the United States Department of Agriculture was taken by Secretary Wallace on July 1, when the work of three bureaus touching most intimately the immediate problems of American farmers and American agriculture was merged. These bureaus were the Bureau of Markets, the Bureau of Crop Estimates, and the Office of Farm Management and Farm Economics. Congress had authorized the consolidation of the first two on that date. In the interest of economy and good administration, Secretary Wallace, anticipating a recommendation which he will make in the next agricultural appropriation bill looking to the consolidation of the three bureaus into one, took steps to bring about such a coordination and redirection of the activities of the three bureaus as will effect a virtual consolidation immediately, preparing the way for the development of a single bureau, which it is hoped Congress will authorize. The regrouping and coordinating of these activities will be under the direction of Dr. H. C. Taylor, formerly chief of the Office of Farm Management and Farm Economics, who is the new chief of the Bureau of Markets and Crop Estimates, and L. M. Estabrook, former head of the Bureau of Crop Estimates, who is the associate chief.

Appointed Economic Council.

Soon after taking office, Secretary Wallace appointed an economic council made up of the chiefs of several bureaus in the department. The members of this council are Dr. E. D. Ball, Assistant Secretary of Agriculture, chairman; Dr. H. C. Taylor; Dr. W. A. Taylor, Chief, Bureau of Plant Industry; Dr. J. R. Mohler, Chief, Bureau of Animal Industry; and Mr. L. M. Estabrook, Associate Chief of the Bureau of Markets and Crop Estimates. Secretary Wallace asked this council to make a careful study of the economic work of the department with the purpose of coordinating and strengthening it. The council in turn consulted with a number of experts from different parts of the country and the reorganization plan was finally drawn and approved by the council, after consultation with Dr. Thomas F. Hunt, dean of the College of Agriculture, University of California; Andrew Boss, professor of farm management, University of Minnesota; G. F. Warren, professor of farm management, Cornell University; G. I. Christie, director of the Indiana Experiment Station, Purdue University; and Prof. T. F. Cooper, director of the University of Kentucky Experiment Station. These gentlemen were much pleased with the plan proposed and pronounced it the most forward-looking program undertaken by the department in many years.

The reorganization is the result of Secretary Wallace's determination to marshal all the forces of the Department of Agriculture engaged in economic work into one fighting unit to attack the economic evils that have brought about the present serious situation in American agriculture. Mr. Wallace in his first official statement as Secretary of Agriculture declared that the agricultural depression was "the inevitable result of economic conditions." Proceeding from this diagnosis, he prescribed for the disease in the same statement as follows: "We must study everything which influences both production and price. We must look into the matter of competition from farmers of foreign lands where the agriculture is still being exploited and where wages and the standards of living are very much below the standards which we demand for our people. We must look into world conditions both of supply and of demand, and produce more intelligently and adjust our various crops to the probable needs. We must look into the administration of our credit machinery."

That may be taken as the program of the new unit in the department. It is, of course, a big program, a mouthful, and the department is making no boast that it can be chewed and swallowed this year or next. Without making extravagant promises or boastful prognostications about what is going to be done, it is possible now to forecast the direction the new activities will take and to outline the tentative organization of work in the new bureau.

Will Be Made Separate Unit.

Regulatory activities—that is, the administration of various laws relating to marketing, such as the grain standards act, cotton futures act, the standard container act, and the warehouse act—probably will be separated from the research and informational work of the bureau and the administering of these laws will be placed under a single unit, which likely will be known as the Federal agricultural marketing board. This board, similar in its make-up to the Federal Horticultural Board, which administers quarantine acts and other measures relating to the plant industry, will be composed of representatives of the new bureau, the Bureau of Animal Industry, the Bureau of Plant Industry, and the Bureau of Chemistry, all of which branches of the department are interested and involved in the administration of marketing laws.

With the regulatory activities separated and disposed of in the marketing board, the research and service work will be grouped in ten divisions. The activities of these divisions, beginning with the economics or business of production on the farm and following the course of the products through storage and distribution, will line up somewhat as follows:

(1) *Farm management or the organization of production.*—This division will be concerned with studies of types of farming, with a view to aiding farmers to determine the kind of enterprise or combination of enterprises in which to engage. It will study the size of the farm business, farm plans or layouts, the effective use of labor and equipment, the intensity of production, cost factors and their relation to farm organization, price trends and their relation to farm organization and reorganization, market grades and practices in their relation to farm management, and it will make comparative studies of farm management methods and practices.

Costs to Be Studied.

(2) *Cost of production and distribution.*—In this division will be combined the important cost-of-production studies now being carried on by the Office of Farm Management and Farm Economics and the marketing cost investigations recently begun by the Bureau of Markets and Crop Estimates. The elements of cost for each stage in production and distribution will be determined as well as the relation of costs to charges for services, the relation of costs and prices, and the relation of cost studies to better business methods in production and distribution, and the relation of supply to the demand.

(3) *Land economics.*—The work of this division will be directed along the lines of land resources and utilization, land values, ownership and tenancy, the farm labor supply and movement, land settlement and colonization, methods of renting, and other problems relating to land and labor in agriculture, looking to the establishing of a wholesome system of land tenure and harmonious relations between the various groups of agricul-

tural workers, landowners, tenants, and laborers.

(4) *Marketing of farm products, or the organization of distribution.*—This division will comprise subdivisions devoted to the various important farm commodities. It will make a descriptive study of the methods and practices of marketing each farm crop. It will study market conditions, demand for specific crops, and sources of supply. It will investigate the preparation, grading, handling, and the transportation and storage of these products. The organization of the markets for these crops will be studied and the methods and possibilities of their cooperative marketing will be investigated. Fundamental problems of standardization will be attacked and the practical grading of each crop will be worked out.

Will Collect Statistics.

(5) *Agricultural prices and statistics.*—This division will collect statistics of production and distribution of farm products, and it will report crop and livestock production in the United States and foreign countries, stocks on hand, demand and consumption, and prices of farm and manufactured products. It will serve as a collector of a great variety of statistics for other divisions of the bureau and for the department as a whole.

(6) *Agricultural readjustment or agricultural history and geography.*—Historical and geographical studies in production and distribution of farm products will be made by this division. It will endeavor to interpret and explain the trend of agricultural prices, the trend of agricultural production, the development or decline of markets, and shifts in agricultural production. It will study the geographic factors determining types of farming, the geography of the world's agriculture, and it will continue the work already started in preparing and publishing an Atlas of American Agriculture.

(7) *Agricultural finance.*—The field of this division will cover investigations of the methods of financing production and marketing of farm products, insurance of buildings, live stock, and stocks in storage, taxation and its relation to production and distribution, and the financing of rural public utilities and other group enterprises.

Foreign Countries to Be Watched.

(8) *Agricultural competition and demand in foreign countries.*—This division will investigate agricultural conditions in countries that compete with the United States. It will study the agricultural potentialities of those countries, their farm management and marketing practices, and demand and opportunities in foreign markets. It will also conduct demonstrations to encourage consumption.

(9) *Country life and rural organization.*—This division will study the characteristics and movements of the rural population, rural home life and its relation to agriculture and population movements, opportunities for social contacts typical in rural communities, rural organization, the relation of educational and religious institutions to farm life problems, and the various effects of farm labor, tenancy, and landlordism. The economic end in view in this work is the maintaining on the farm of the best elements of our population by making farm life attractive.

(10) *Extension service.*—This division will include extension activities, new services, inspections of fruits and vegetables, and the press and publication work of the bureau. Through it the bureau will carry the results of its studies and investigations to the people. Economic extension specialists who will work in cooperation with the State extension services will aid in extending results; the news services relating to production and marketing will reach the largest number of persons possible; demonstrations and exhibits of grades, standards, and marketing methods will be conducted; and the press, both public and departmental, will be utilized to the fullest extent in carrying facts, news, and suggestions to the farmers.

No Radical Changes Likely.

While the plan of organization outlined represents the objective toward which the present merger and coordination will strive, no radical changes are likely to be made immediately in the work of the three bureaus as carried on during the last year further than to bring them in close contact with one another. Changes will be made only after careful study. Certain economies can be effected by closer coordination, but there will be no curtailment of services that have proved their usefulness. Rather than curtailment the plans for the new bureau contemplate a larger field of activity for the economic work of the department. Agricultural statistics and crop reports, farm management, and the marketing of crops are so intimately related that it is believed the combining of the three bureaus will result in increasingly valuable and efficient service to the farmers of the country.

Because of the Secretary's special interest in economics the new plan is close to his heart and he is expecting much from it. He is anxious that the department may build up such a service to farmers in their distribution problems as it has rendered them in matters of production. There is no question in his mind that it is the department's duty to give the same sort of service in all the problems of distribution as it does in production, though he has no thought of building up a knowledge of the former at the expense of the latter. He does not share the view of some that agricultural production can now take care of itself. He does feel that American agriculture has suffered from a lack of knowledge of the economic forces affecting it and his first efforts will be directed toward strengthening this weakness. In the redirection of its marketing activities, therefore, it may be expected that the department's service will go farther than the collecting of information about marketing methods and conditions. Causes and the results of forces affecting such conditions will be studied and corrective measures will be developed and applied wherever possible.

Must Study All Angles.

Mr. Wallace probably did not overstate when he said: "We must study *everything* which influences both production and price." Dr. Taylor's bureau will be expected to turn on the light along the entire course which the farmers' products take from the farms to the consumers. That will be the first step—information. The second will be constructive rearrangement of the machinery of distribution based on the facts. The Secretary will insist that the department have the facts before any radical changes are undertaken, and he wants the facts about every influence bearing on the case. The experience of the last few years has shown the important influence of apparently remote forces. The field of agricultural investigation must be broadened more and more and it must stretch out to foreign countries. I believe the Secretary is as anxious that the department be able to advise the corn grower in Illinois about the probable influence of Argentine agriculture on the price of corn-belt land as to tell him what varieties of corn are best to plant. It is hoped and expected that the combined bureau will be so organized as to make available essential facts which will enable the department and agricultural leaders to formulate a constructive program for agriculture.

The storing of late vegetables is an economy for those who grow them in sufficient quantity for the needs of the family.

To care for the surplus vegetables in many cases, says the United States Department of Agriculture, requires nothing more than the use of existing facilities in or near the home.

Nut Trees Planted Along Highways Provide Good Shade, Food, and Timber

The war demand drew heavily upon the black-walnut timber supply. The condition became alarming, as it was recognized that unless there should be a decrease in the cutting, the merchantable trees would soon be gone. Fortunately, however, the war ended before the larger trees entirely disappeared. Now a reaction is setting in. Black walnuts are being planted in small numbers by many persons, directly in harmony with the policy advocated by the United States Department of Agriculture.

Black Walnuts from Mount Vernon.

A conspicuous instance of planting has occurred near Saginaw, Mich. Last fall, Hon. W. S. Linton, president of the Northern Nut Growers' Association, procured 30 bushels of walnuts from trees at the home of George Washington at Mount Vernon, Va. These were shipped to Saginaw and in the main distributed among the school children of the county and planted, two in a hill, on school grounds and along public roads and streets. Two thousand were placed in a nursery for later transplanting in one of the public parks of Saginaw.

When it became known that these nuts were available for planting, very keen and widespread interest in them developed. Telephone calls for them were numerous. Automobilists drove for many miles to call in person. Since then, enthusiastically attended meetings have been held in various places in the State to consider the question of black walnut tree planting along the highways. Now, a convention of the Michigan Good Roads Association is being arranged at which 1,200 delegates are expected to be present and the matter of roadside planting is to be given prominent part on the program.

The department believes that a movement of this character has large possibilities for good in it. At the same time the suggestion is made that in view of the known differences of hardiness existing in many species of native trees, special care should be exercised to avoid extensive planting of nuts or trees from the warmer portions of the country in sections where destructively low temperatures are occasionally experienced. It has been well established through tests that pecan trees grown in Michigan from nuts of that species native to the Gulf coast region are not sufficiently hardy to endure the low temperatures occasionally experienced in the Northern States, although trees grown from pecans from wild trees in Iowa, Illinois, and Indiana suffered no injury. While definite information on this point is lacking, it is not unlikely that cold endurance of black-walnut trees from different parts of the country varies considerably.

Select Nuts from Desirable Trees.

Doubtless the safest rule to observe in the North is to plant nuts from trees that have attained good size and habit, and as nearly as possible in the section where they are to be planted. No harm is likely to result from transferring such trees from northern points to more southerly locations in so far as reaction to temperature is concerned.

The suitability of the black walnut for home planting is now being recognized as never before. That is one of our most valuable American trees and that its numbers have steadily been decreasing has long been realized. To a considerable extent this tree was planted on the western prairies by the first settlers in compliance with the timber and stone act, repealed in the late eighties, which required that trees be planted in proportion to land taken up from the Government. Some planting has been going on in States and districts beyond the range to which the species is indigenous, but no extensive planting has ever taken place.

Even now the Forest Service of the United States Department of Agriculture does not advise its planting in pure stands on land from which income is necessary during the lifetime of the average planter, as no returns in timber are probable under at least 35 or 40 years from the time of planting. From then on, for a number of years, $5 per acre would be a fair average return from good soil, say forestry experts, basing their statements upon practical tests.

Effective in Landscape Planting.

However, the Forest Service and the Bureau of Plant Industry of the department agree that the planting of black walnut trees is worthy of consideration under certain conditions. Few species have a wider geographic range; few valuable species are more rapid growers when given favorable environment; and few are more effective in the landscape when rightly used. In addition the black walnut produces an edible and nutritious food crop.

Department experts recommend that the walnut be included among the species for planting in public parks, on large, private lawns and dooryards, along highways, and in out-of-the-way places on the farm. It is invariably the single tree planted in the open, apart from other trees, that develops into the most perfect specimen. It is such trees that produce the greatest quantity of nuts. Usually the finest quality of kernel is from this source.

THIRTY-THREE STATES JOIN MOVE TO SAFEGUARD FORESTS

(Continued from page 1.)

administration, $27,000; for a study of watershed areas, $10,000, and to establish and maintain State forest nurseries, $35,000. The legislature also voted $300,000 for the purchase of redwood timberland for park purposes along the State highway in Mendocino and Humlands through a concession in taxation. tered by the State board of forestry.

Many Important Bills Pass.

Other important State forestry legislation passed this year was as follows:

Bills for the compulsory teaching of fire prevention in public schools were passed by California, Rhode Island, and West Virginia. A similar measure was passed by the New York Legislature but vetoed by the governor. New Jersey already has such a law.

Maine increased the annual tax on land within the forestry district from $1\frac{3}{4}$ to $2\frac{1}{4}$ mills on the dollar, the taxes thus collected to be used exclusively for the protection from fire of the forests within the district; provided for the creation and management of State forests, acquired by purchase or gift, by the State forester; adopted improved means for controlling the disposal of lumbering slash, and the encouragement of timberland owners to practice forestry on their lands through a concession in taxation.

Ohio passed a forest-fire law and appropriated $5,000 a year for two years for the prevention and suppression of fires; also made an appropriation for the purchase of lands for State forests.

Tennessee passed a general forestry bill and appropriated $10,000 for fire protection and $7,500 for general forestry purposes.

North Carolina increased the State appropriation for forest protection from $3,800 to $9,000.

In Louisiana provision for State control of all natural resources, including forests, was provided for by constitutional convention held early this year.

In New Hampshire provisions were made for leaving seed trees on cut-over pine lands, for redistricting of the State for forest-fire purposes, and for compul-

sory forest-fire patrol on large timberland holdings.

Connecticut provided for reorganizing the State forestry administration and protection work and for more liberal appropriations.

Consider Forestry Problems.

Several of the other State legislatures have also had forestry questions under consideration, which have made for progress, even where, as in Florida, no definite legislative enactment took place.

The Georgia Legislature, now in session, has before it a bill providing for the appointment of a board to investigate the forest conditions of the State and to report legislation necessary to solve the forest problem. In order to arouse public interest in this important movement a meeting of the Southern Forestry Congress was held in Atlanta during the latter part of June and attended by over 150 prominent men representing the most active forestry interests in the Eastern and Southern States. At this conference it was shown that the lumber cut of Georgia has decreased 33⅓ per cent in the past 10 years, while the production of turpentine and rosin has fallen off 75 per cent. In the opinion of foresters, it will be only a few years before Georgia will take a place with the Carolinas as an insignificant producer of naval stores.

In only one State, West Virginia, was the forestry situation given anything like a setback. In that State, in reorganizing the forest, game, and fish department, forestry was at first entirely eliminated and then, just before passage, an optional provision was included in the fish and game bill by which the new commission can, if it wishes, expend not to exceed a fourth of its appropriations for forest protection.

POISONED MOLASSES FOR KILLING COTTON BOLL WEEVIL

There seems to be little reason for the use at any time of poisoned molasses in preference to plain calcium arseuate for killing the cotton boll weevil, and certainly not on cotton plants after they reach the squaring stage, in view of experiments conducted by the Bureau of Entomology, United States Department of Agriculture. Dusted calcium arsenate, the tests indicated, is superior to the molasses mixture except during exceedingly dry weather and on very small plants.

Keen interest has been evidenced recently in certain parts of the cotton belt over the possibility of poisoning the weevil with a mixture of molasses, calcium arsenate, and water. So many inquires were received by the department concerning the efficacy of the mixture, together with reports of excellent results secured in its use in the field, that a series of tests were undertaken by the bureau to determine the relative merits of the two methods of controlling the pest.

The first series of tests consisted of cage studies comparing the weevil mortality on plants treated with the molasses mixture with the mortality on plants dusted with plain calcium arsenate, and also the death rate on unpoisoned check plants. Various concentrations and amounts of molasses mixture were tested, and the entire series was repeated five times. In all 86 different cage tests, involving the use of about 1,200 weevils, were included in these series.

It was found that while molasses in combination with calcium arseuate exercises a certain degree of control over the boll weevil it is generally no more than that secured with plain dusted calcium arsenate. Under certain conditions a much better degree of control was had from the mixture, but this result was noted only in the case of very small plants averaging only a few inches in height and also only during exceedingly dry weather. The latter fact was particularly noticeable and is probably the key to the variation in results, the department believes.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended August 17, 1921:

Game Laws for 1921.—A Summary of Federal, State, and Provincial Statutes. By George A. Lawyer, chief United States game warden, and Frank L. Earnshaw, assistant, interstate commerce in game. Pp. 80. Contribution from the Bureau of Biological Survey. August, 1921. (Farmers' Bulletin 1235.) Suitable for general distribution.

The Relation of Water-Raking to the Keeping Quality of Cranberries.—By Neil E. Stevens, pathologist, and H. F. Bergman, formerly scientific assistant, fruit disease investigations. Pp. 12. Contribution from the Bureau of Plant Indnstry. Aug. 15, 1921. (Department Bulletin 960.) Price, 5 cents.

This bulletin is based on investigational work in Wisconsin extending over three seasons, and deals with the water-raking problem only in its relation to the keeping quality of the fruit. Of interest to cranberry growers.

Standards of Labor on the Hill Farms of Louisiana.—By M. Bruce Oates, assistant agriculturist, and L. A. Reynoldson, junior farm economist, section of farm organization. Pp. 27, figs. 7. Contribution from the Office of Farm Management and Farm Economics. Aug. 13, 1921. (Department Bulletin 961.) Price, 10 cents.

This bulletin is a statement of the prevailing standards of labor for crews of various sizes at field and crop work, and the labor requirements of crops per acre for the hill sections of Louisiana.

The Production of the Easter Lily in Northern Climates.—By David Griffiths, horticulturist, Office of Horticultural and Pomological Investigations. Pp. 31, figs. 14. Contribution from the Bureau of Plant Industry. (Professional Paper.) Aug. 12, 1921. (Department Bulletin 962.) Price, 10 cents.

A discussion of the possibilities of producing Easter lilies in northern climates, based on an experience of six years with plants in the vicinity of Washington, D. C. Of interest to florists and horticulturists.

Rules and Regulations of the Secretary of Agriculture under the Food Products Inspection law of March 3, 1921. Circular No. 155, Office of the Secretary. Price, 5 cents.

Repeals all former regulations.

Regulations Governing Entrance to the Veterinary-Inspector Examination.—Promulgated by the Secretary of Agriculture and approved by the President of the Civil Service Commission to indicate the requirements as to veterinary schools and colleges whose graduates are admitted to examinations for veterinary inspectors in the Bureau of Animal Industry. (Circular No. 128, Office of the Secretary.) (Revised.) Price, 5 cents.

Soil Survey of Sheridan County, Nebr.—By F. A. Hayes in charge, and Louis A. Wolfanger, of the U. S. Department of Agriculture, and H. L. Bedell, L. Britton, S. C. H. Taylor, and F. M. Deutsch, of the Nebraska Soil Survey. Pp. 60, pls. 2, fig. 1, maps, 2. (From F. O. Soils, 1918.) Price, 15 cents.

Journal of Agricultural Research.—(For sale only.) Vol. 21, No. 8, July 15, 1921. Contents: Relation of Hardness and Other Factors to Protein Content of Wheat (Kans. 26). By Herbert F. Roberts. Effects of some Cucurbita Seeds on Animal Metabolism (N. J. 7). By Benjamin Masurovsky. A Constant Temperature Bath for Heating Blood Serum (A. 59). By R. R. Henley. Assimilation of Nitrogen, Phosphorus, and Potassium by Corn When Nutrient Salts are Confined to Different Roots (B. 17). By P. L. Gile and J. O. Carrero. Reduction in the Strength of Mercuric-Chlorid Solution Used for Disinfecting Sweet Potatoes (G. 236). By J. L. Weimer. Catalase, Hydrogen-ion Concentration, and Growth in the Potato Wart Disease (G. 237). By Freeman Weiss and R. B. Harvey (G. 238). By Erwin F. Smith. Effect of Length of Day On Seedlings of Alfalfa Varieties and the Possibility of Utilizing This as a Practical Means of Identification (G. 239). By R. A. Oakley and H. L. Westover. Pp. 507-607. Pls. 22, figs. 4. Price, 10 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your requests definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the superintendent of documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the superintendent of documents direct; not to the Department of Agriculture.

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Weekly News Letter

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APPROPRIATION TO ENFORCE PACKER LEGISLATION ASKED

Not Provided for in Law and Department Has No Funds Available for This Use.

Secretary Wallace Announces That Administrative Force Will Not Be Large at Start—Administrator Will Be in Charge—Résumé of the Law.

The President has approved and transmitted to Congress an estimate of $240,450 submitted by Secretary of Agriculture Wallace for the enforcement of the Packers and Stockyards Act during the present fiscal year. The bill, which became a law when it was signed by the President August 18, carried no appropriation, and the department has no funds in its present appropriation act to carry on the enforcement work. In submitting his estimate, Secretary Wallace stated that the organization provided for administering the law would not be large to begin with, but would be developed gradually as the duties of the work of enforcement required. The estimate provides for an administrator in charge of the work who will be directly responsible to the Secretary.

Many Transactions Covered.

This law, so far as it relates to the packing industry, covers the buying of live stock in interstate or foreign commerce for slaughter, manufacture of edible products of such live stock for sale or shipment in interstate or foreign commerce, or manufacture of inedible products from live stock, and marketing of both edible and inedible products of live stock, as well as dairy products, poultry, poultry products, and eggs, but does not apply to the latter unless the handling of such dairy and poultry products is associated with the business of buying and slaughtering live stock. The act includes not only the actual shipment in interstate commerce but also any transaction having in prospect the ultimate shipment in interstate or foreign commerce.

Packers are prohibited from any unfair, unjustly discriminatory, or deceptive practice or device; or from making or giving undue or unreasonable preference or advantage to any person or locality; or from apportioning the supply of any article between them, where the tendency or effect of such apportionment would restrain commerce or create a monopoly; or from dealing with any person for the purpose, or with the effect, of manipulating or controlling prices or of creating a monopoly or of restraining commerce; or from engaging in any course of business for the purpose, or with the effect of manipulating or controlling prices or of creating a monopoly in buying, selling, or dealing in any article, or restraining commerce; or from conspiring, combining, agreeing, or arranging with any other person to apportion territory or purchases or sales or to manipulate or control prices; or from aiding or abetting the doing of any of the foregoing acts. Apparently, the prohibition against the apportionment of territory, purchases, or sales is absolute whether or not it might create or have a tendency to create a monopoly or restrain commerce.

May Invoke Injunction.

The duty is imposed upon the Secretary of Agriculture to order the packer to discontinue any of the acts forbidden if, after hearing, he shall find the packer is guilty of such acts. Testimony taken at the hearing must be taken down and filed in the Department of Agriculture. The packer may within 30 days petition the circuit court of appeals in the circuit in which the packer has his principal place of business to set aside or modify the Secretary's order. If he does file such petition, the Secretary must file in the court a full transcript of the record. The court then may, on application of the Secretary, issue a temporary injunction restraining the packer from violating the order until the case is determined. The court may order additional testimony taken by the Secretary if that is necessary, and may affirm, modify, or set aside the Secretary's order. If the court affirms the order, its decree operates as an injunction against the

(*Continued on page 7.*)

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NEW BIRD LAW PROHIBITS GUIDES FROM MAKING KILL

Hunters Must Include in Their Daily Bag Limit All Birds Killed by Their Guides.

States Cooperate with Federal Government to Make Open Season Identical—Hunting from Airplanes Prohibited—Further Restrictions on Hunting Big Game.

A tendency to tighten the restrictions on the hunting of birds and big game is noted in the game laws for 1921, a summary of which, both Federal and State, has been compiled by the Biological Survey, of the United States Department of Agriculture, and published as Farmers' Bulletin 1235. Among the notable changes made during the present year was the amending of the migratory-bird treaty act regulations with respect to bag limits.

This amendment provides that the daily bag limit of any person shall now include "all birds taken by any other person who for hire accompanies or assists him in taking migratory birds." This will put an end to the abuse of privileges under the regulations regarding the prescribed daily bag limits by persons who claim that birds were killed by guides accompanying them.

The Federal waterfowl season for California was fixed from October 1 to January 15, replacing the old season of October 16 to January 31, the season now being the same under both Federal and State laws. Regulation 9, governing the issuance of Federal scientific permits, was amended to permit the issuance of limited and special permits.

Many Conflicts Smoothed Out.

State legislation harmonized Federal and State laws on waterfowl and shore birds in Kansas and Oregon, and on waterfowl in Pennsylvania and Rhode Island; Washington prescribed a State-wide open season on all migratory game birds from October 1 to January 15, thus deviating from the Federal regulations,

which supersede the State law, east of the Cascade Mountains, where it will now be possible to hunt migratory game birds only from October 1 to December 31, without violating either Federal or State law; in Idaho the open season on migratory game birds has been shortened under State law two weeks by opening October 1 instead of September 16, and extending to December 31.

Idaho, Kansas, Montana, Nebraska, Oregon, and Washington enacted legislation similar to the Federal regulation prohibiting hunting from airplanes. Colorado reduced the bag limit on ducks from 20 to 15 a day, while Kansas increased the limit from 20 to 25. In New Jersey reedbirds were protected at all times by being placed in the nongame class. The open season for woodcock was shortened 25 days in Michigan, 2 weeks in New York, and 1 month in Vermont. Doves were protected until 1924 in Colorado; and in Kansas an open season on them was provided from September 1 to October 15.

Shorten Season on Big Game.

In general seasons on big game were shortened and hunting further restricted. Buck laws were enacted in Michigan, Montana, Nevada, North Dakota, South Dakota, Vermont, and in Washington east of the Cascades. Maine protected spike bucks and prescribed that 1 of the 2 deer allowed in the 8 northern counties must be an antlered buck, and provided that in 2 of the counties only residents may hunt deer during the last 2 weeks of the open season. Bull moose were protected for 5 years in Maine.

The summary of the laws contains the provisions relating to seasons, licenses, limits, possession, sale, and export, thereby furnishing the reader a brief and convenient synopsis of the laws of each State, Territory, or Province of Canada. The migratory-bird treaty, the treaty act, and regulations, as well as the Canadian regulations also are appended. Copies of the bulletin, Game Laws for 1921, may be had free upon application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

HEIGHT OF HEMP DOUBLED—IMPROVED FIBER RESULTS

Developing hemp stalks from less than 6 feet to more than 14 feet in height, and at the same time more than doubling the internode spaces—length of uninterrupted fiber between joints—was an accomplishment of the United States Department of Agriculture in six years breeding work at the Arlington experimental farm. The improved seed was used this year for a portion of the 3,000 acres of hemp being grown in Kentucky. The improvement was obtained through careful selection each year. Every plant in the selection plat is measured and a record kept. Each succeeding crop is grown from seed of the best individual plants of the preceding year.

Hemp plants produce continuous fibers from base to apex, but some fibers stop or turn off at each node, and those having longer internode spaces are much preferred. The sizes of stalk mentioned are obtained only in hemp cultivated in drills or checkrows for seed, but the relative increase in size of field hemp sown broadcast for fiber production with the improved seed is about the same.

MID-SEASON POTATO PRICES REFLECT CHANGE IN CONDITIONS

Although the potato acreage is estimated by the Bureau of Markets and Crop Estimates, United States Department of Agriculture, to be 3,972,000, or 1.6 per cent greater than last year, the weather during July was so unfavorable that the estimated yield on August 1 showed a drop of 61,079,000 bushels from the indicated yield on July 1. The figures for yield were placed at 315,918,000 bushels, as compared with 428,368,000 for 1920 and a five-year average of 371,283,000. Prices reflected the change in condition. On July 16 the average of 10 leading markets was $3 to $4.75 per barrel for Virginia Eastern Shore Cobblers and $1.25 to $2.15 per 100 pounds for Kansas Early Ohios. By August 12 Virginia Eastern Shore Cobblers had advanced from $4.75 to $5.50, while Kansas Early Ohios were selling at $2.40 to $3.25; Idaho Rurals were moving at $3.50 to $3.60 per 100 pounds.

Federal Aid to Help Pay Farmers In States Having Non-Cotton Zones

Under the terms of a joint resolution adopted by Congress and signed by President Harding, the United States Department of Agriculture will be able to contribute to the relief of States in the Cotton Belt that have given aid to farmers in noncotton zones established in the effort to eradicate the pink bollworm.

A Limit of $5 Per Acre.

The resolution makes available for this purpose $200,000 of the $554,840 provided in the Agricultural Appropriation Act for the current fiscal year for pink bollworm eradication. When any State has taken adequate steps to eradicate the pink bollworm in any area actually infested or threatened the Secretary may reimburse it for expenses incurred in compensating farmers for loss due to the enforced nonproduction of cotton. Reimbursement must be based upon the actual and necessary loss suffered by the owner of the land. It can not exceed one-third the amount actually paid by the State to any farmer and must not exceed $5 per acre. No reimbursement will be made on account of any farmer who has not complied in good faith with all quarantine and control regulations prescribed by the Secretary of Agriculture and the State relative to the pink bollworm.

It is held by the department that prohibition of the growing of cotton works a hardship on such farmers as find cotton a much more profitable crop than any other, and compensation is deemed to be just in these cases the same as where live stock is killed in the process of stamping out a contagious disease. It is the opinion of department scientists who are familiar with the matter that the use of pink bollworm eradication appropriation for reimbursement purposes will result in saving money in the fight against this pest. It now costs approximately $10 an acre to clean infested cotton land of old cotton. In noncotton zones this cost is eliminated.

DEPARTMENT WELCOMES FACTS ON BETTER-SIRES BENEFITS

The United States Department of Agriculture invites those who can contribute actual facts showing results from using better sires to send such material to the Bureau of Animal Industry. The bureau has under revision a previous compilation of specific facts and figures on benefits following live-stock improvement by the use of purebred sires. The material will be prepared for distribution early in September, and it is desired to make it as complete and as useful as possible. Facts concerning swine, sheep, and poultry are especially desired.

The department, in its work to bring about improvements in the average herds now on farms, will disseminate as widely as possible facts showing how herds and flocks have been brought to a higher grade and how purebred sires increase the farm income.

COUNTY AGENTS CARRY GOSPEL OF BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

Opposition to County Agent can Be Changed to Good Will

Perhaps every county agent can tell a story of unusual prejudice on the part of some local farmer encountered during the course of his experience. Not all, however, are as successful in overcoming opposition as a certain Alabama representative of the United States Department of Agriculture and the State agricultural college. His particular bete noire started out somewhat belligerently when the agent first called:

"Young man, if you have come out here to get me to plant a little dab of this and a little of something else, and expect me to keep records on it and report to you, you can drive on, and the sooner the better." After getting this greeting the agent says he decided that here was a man who would at least let you know where he stood. He decided to cultivate his friendship, and found the farmer a man of good character and really progressive. The agent reports that since this conversation the farmer has been induced to get a purebred bull, to build a mile of pasture fence, build a milk house, buy a cream separator, get a gas engine for his feed mill, build a new barn, buy and grow purebred hogs, plant pasture grasses, clean a field of stumps, give a small piece of ground for a school demonstration plot, build a sweet-potato house, grow legumes in his corn, plant alfalfa, sell cream to the creamery, and a number of minor things.

LABORATORY TEST SHOWS IMPURITIES IN CLOVER SEED

A farmer in Rowan County, N. C., was about to purchase some clover seed this spring from one of his neighbors, preparatory to seeding down his wheat acreage. He noticed that the seed was somewhat impure, and was reminded of the warnings so frequently given by the county agent in respect to pure seed. He asked to have a small sample tested for purity by the State Seed Laboratory at Raleigh. The sample was reported on merely as "No. 9." Each pound was found to contain approximately 65,062 buckhorn seeds, 12,282 dodder, 2,622 wild carrot, 2,208 black-seeded plantain, 414 curled dock, 276 Venus' looking-glass, 138 each of crab grass and green foxtail—a total of 83,140 weed seeds in each pound. This would no doubt be sufficient to seed the man's land to these pests for the next decade. Although this sample was the worst of any tested through the county agent's office, on casual inspection it indicated only ordinary impurity. A laboratory test is a safe check even on the purest farm seeds.

BARBED-WIRE FENCE PHONES NOW USED IN SOUTH DAKOTA

There are still many rural homes that do not have telephones, and, as at present, economy in all lines is imperative, interest is reviving in the "barbed-wire system," which was more or less common in parts of the West 20 years ago.

In Carson County, S. Dak., the county agricultural agent has assisted farmers to install such a system at an average cost of material per farmer of less than $20. Carson County is 87 miles long and very sparsely settled, although the agricultural lands are fenced. Standard telephone lines appeared to be too expensive, yet there was a great need of facilitating communication. The county agent furnished information regarding the cost of installing the line, using porcelain nail knobs for insulation, which cost about $5 per mile. These knobs work satisfactorily when the barbed wire is tied to them with a short piece of wire.

In order further to reduce the cost some farmers tried pieces of rubber cut from automobile inner tubes as insulators. Pieces of the tubing 1½ inches square were wound around the barbed wire and fastened to the post with staples. The county agent reports that this insulation is giving satisfaction, although, of course, the rubber will deteriorate in time.

The farmers were able to obtain secondhand phones at from $5 to $20 each, and 50 cents bought a lightning arrester, so that the total cost per farmer was nominal.

Each farmer has his own special ring, so there is no expense for a central. It is possible with a system like this to connect various parts of the farm or distant barns with the house, or the tenant house with the farm home, at a very low cost. While such a system leaves much to be desired in the way of service, it meets an emergency and can be made to answer, pending the coming of times when conditions will warrant a more expensive and more satisfactory system.

Farmer Who Stored Shelled Corn In Sacks Gets $100 Added Profit

Improvement of the methods of gathering and storing and in the time of marketing corn, where there is a surplus, has been one of the problems handled lately by a county agent in Alabama. He reports that in 1920 three men in a community near Gantt unconsicously proved the very point he was anxious to make. Each had about 200 bushels of corn for sale. One sold his from the field at $1.20 per bushel. The second farmer stored his in the old way and sold it for $1.75, although it was gnawed by rats and eaten by weevils.

The third man brought his 200 bushels in, shelled, in good even weight sacks, with no weevils, and received $2.25. He had shucked, shelled, and sacked his corn at spare times during the fall. He had learned from the county agent how to kill the weevils. The only expense he went to, although his corn brought so much better price, was for sacks and the weevil exterminator. He said the shucks were worth all that for roughage for his cows. This gave him $100 more for 200 bushels of corn than his neighbor who sold the same day.

WEATHER BUREAU HELPS TO GET ORCHARD FROST DATA

Systematic frost work has been carried on in Jackson County, Oreg., by the county agent and a representative of the Weather Bureau of the United States Department of Agriculture. April was a bad month for frost in the Rogue River Valley, and considerable orchard heating was necessary. The two men cooperated in securing data on various phases of the work for that month. Many photographs were taken of the fruit in different phases of development, and counts were made of the damage done by each frost. Government thermometers were used in various localities so that definite information was available as to the exact temperatures that the orchards were subjected to. Check observations were also made on the heated orchards for comparison. This work will be followed up by the county agent during the season and actual tonnage will be recorded on heated and similar unheated tracts.

Weekly News Letter

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John L. Cobbs, Jr., Chief

PRESS SERVICE
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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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PLUCKY PIGEON FINDS WAY HOME AFTER EIGHTEEN DAYS

Seventeen days behind his fastest companion, a wind-buffeted but plucky homing pigeon pushed through the trap that rings the automatic bell at the United States Department of Agriculture poultry husbandry farm at Beltsville Wednesday morning bearing a message from Mayor Thompson, of Chicago, to Congressman Martin B. Madden, of Illinois. He is the third to reach home out of 10 birds from the farm, which were liberated as part of the Chicago Pageant of Progress, July 30.

One of these broke a world's record by covering the 614½ miles in 27 hours elapsed time, which, in the opinion of Albert Jacobson, expert in charge of homing pigeons, means less than 16 hours actual flying. This bird bore a message from Mayor Thompson to President Harding. The speed with which he covered the distance seemed to indicate that he realized the importance of his errand, but when he arrived at the home loft he was so overcome with modesty that he slipped in without even ringing the signal. Supt. Jacobson had been making hourly visits to the loft and found him there, and the record was officially clocked at the homing pigeon club. The shortest actual flying time ever made before between the two points was 25 hours.

The second bird, bearing a message to Congressman Britten, arrived August 7. Another, bearing a duplicate message, reached Dry Fork, Va., where it became exhausted and was taken in by a farmer. What misadventures befell the latest arrival in his 18-day journey the attendants are unable to tell. It is supposed that he became weak and was obliged to stop and search for food and shelter. That he was able to resume his flight and find his way is regarded at Beltsville as a remarkable exhibition of the homing instinct.

NEW LABORATORY SECTION STUDIES WOOD UTILIZATION

A new section, for industrial investigations, has recently been added to the Forest Products Laboratory and the Forest Service of the United States Department of Agriculture believes will meet a real need. The work will embrace the following lines: A survey of the primary and secondary wood-using industries to determine the possibility of more complete utilization of by-products, low-grade material, and wood waste; dimension stock study, including the standardization of small dimension stock requirements and determination of the most economical methods of converting the standing tree into the form of material required in secondary wood-using industries; standardization of nomenclature, sizes, grades, and specifications for lumber and crossties; wood waste exchange to effect the utilization of raw material now disposed of as waste by supplying a medium through which producers can locate markets for woods, mill and factory by-products and waste, and wood-consuming plants can locate material of this character such as will meet their requirements; general work, including the broad field of encouraging the wider use in the wood-using industries of the results of technical research available at the laboratory.

The proposed personnel of the new section, partly recruited from other laboratory sections, will consist of 10 technical foresters, 1 engineer, and 4 nontechnical employees.

WIRELESS PHONE SUCCESS IN IDAHO FOREST SERVICE

Wireless telephone communication as an aid in its work against forest fires was successfully established by the Forest Service of the United States Department of Agriculture on July 15, between Warren, Idaho, and the Moore Forest Ranger Station on the Nez Perce, an airline distance of 35 miles. The sets for this satisfactory installation were sent to Idaho about a year ago but were damaged in transit. Finally they were repaired by the telephone engineer who set them up last month. They were first given a try-out between Ogden and Salt Lake, a distance of 37 miles. The set proved to be in good working condition and was tested again between Salt Lake and Elko, Nev., a 200-mile stretch. The messages were heard at the air mail station at Reno, 400 miles from Salt Lake.

The instruments have already proved their value in Forest Service work. Shortly after their installation a report came from the lookout from Buffalo Hump of a fire over on the Idaho National Forest, on the south fork of the Salmon. This communication was given to the district ranger at Warren in just 4 minutes from the time it was received. Before this, roundabout telegraphic communication would have taken the best part of a day or even two days to obtain the same results. It is expected that the increased protection from forest fires afforded by wireless telephone communication will more than pay for the equipment.

EASTER LILIES GROW READILY FROM SEED

In growing Easter lilies from seeds the time of planting depends upon how the florist intends to handle his stocks and possibly upon when his seed becomes available, says the Bureau of Plant Industry, United States Department of Agriculture, in discussing the results of experiments with growing the flowers from seed instead of from bulbs. Sowing, they say, can be done at any season if suitable moisture conditions for germination are maintained. In northern climates, if seed is planted out of doors, it should be sown in the late autumn for spring germination.

For the past six years the United States Department of Agriculture has conducted experiments in the growing of Easter lilies from seed, thus making the raising of the flower in this country independent of bulbs, which are now imported principally from Japan. The lessons brought out by these experiments are now available to those interested in the work through the publication of Department Bulletin 962, entitled "The Production of the Easter Lily in Northern Climates."

Until the trade produces seed of the lily and offers it for sale, it is pointed out, it will be necessary for the grower to raise his own seed. The best way to do this now is to procure imported bulbs either in the early winter, when they are generally offered for sale, or at Easter time, when most of the plants are in blossom, and grow seed for planting the following January.

DEVICE MEASURES RELATIVE VOLUME OF INSECTICIDES

By B. R. COAD, Bureau of Entomology

MECHANICAL device for measuring the relative volume of insecticides has been perfected by S. T. Howard, an engineer in the Bureau of Entomology, United States Department of Agriculture, stationed at the Delta Laboratory, Tallulah, La., and is to be patented and dedicated to the public. It can be made for about $5 in any job shop, and can be used by anyone. Individuals using the device for tests at different places will obtain comparable results.

A Need Long Recognized.

Mr. Howard's efforts grew out of the necessity for perfecting some method to obtain standardization of the chemical composition of insecticides, a necessity long recognized by scientists. A law was passed in 1910 requiring manufacturers to sell material conforming to certain chemical specifications, but this has not always been easy to maintain.

In connection with the development of calcium arsenate as a means of boll-weevil control it was learned that the presence of certain physical qualities in the material was as important, apparently, as the correct chemical composition. Calcium arsenate could be made ranging from a very heavy to an exceedingly light and fluffy product. It was seen very soon that the exceedingly heavy material was not suitable for dusting work, because it possessed comparatively little adhesion, and, furthermore, would not float into the air, and thus become distributed over the plants. It was learned also that the material could be so light and fluffy that it would float off in the air and never settle properly upon the plants.

A series of tests was conducted to determine material most desirable for such work, and in this way it was discovered that the volume in cubic inches to the pound provided a fairly satisfactory criterion for this purpose. All purchasers of calcium arsenate for boll-weevil control have been advised to get a product that would measure between 80 and 100 cubic inches to the pound.

Considerable difficulty has been encountered in enforcing this recommendation, however, because of the lack of a standard method of measurement. Calcium arsenate settles and packs to a great extent in shipment, and it was necessary, therefore, to have some method of fluffing the material to its original volume before measuring it, which would then permit of its measurement without the intervention of any operation which should tend to pack the material.

Method Used Crude.

For several years a very crude method has been utilized which permitted considerable percentage of error, and to reduce this percentage it was necessary to use samples of about 2 pounds each. A much smaller sample was very desirable, so a series of tests was begun by Mr. Howard in the Delta Laboratory. These tests resulted in his inventing the device referred to, with which only 2-ounce samples are needed. These the device fluffs by aeration, requiring only two or three minutes for a determination.

Drawings and instructions have been prepared for using the device, and these have been distributed to all insecticide manufacturers, with the hope that it may be used everywhere in the industry. If this can be achieved it will be a desirable step toward standardization of the physical qualities of insecticides.

DEPARTMENT WILL AID TWO STATES TO IMPROVE FAIRS

An attempt is to be made at New York and Rhode Island fairs to replace the usual "midway" type of entertainment and the "faker" by sports and entertainment in the form of educational pageants. In Rhode Island it is proposed to use a pageant depicting the growth of Indian corn. It is also planned by home-demonstration agents to put on sale practical inexpensive household devices and to maintain milk bars, serving Holstein highballs, Guernsey fizzes, and other milk drinks. The extension organization is largely responsible for these much-needed reforms.

It is hoped more States will follow the example of Rhode Island and New York.

PRICES ON EARLY CABBAGE HAVE BEARING ON LATE CROP

When the early cabbage crop was moving at the rate of 1,000 cars weekly in mid-April, jobbing prices at the 10 leading markets averaged $2 to $3 per 100 pounds, as compared to $2 to $3.50 a year ago, according to figures reported by the Bureau of Markets and Crop Estimates, United States Department of Agriculture. The August crop report estimates the acreage of intermediate cabbage at 18,190 acres and the indicated production at 12,966 carloads, as compared with 17,211 acres and a yield of 10,030 carloads in 1920. Acreage of late cabbage is estimated at 62,950 acres and the condition as 63, which may be compared with 73,834 acres and a condition of 89 that resulted in yield of 10.9 tons per acre, or 64,384 cars, in 1920. Wisconsin shows a decrease of 4,792 acres; New York, 2,872; Ohio, 782; Colorado, 395; Illinois, 365; and Indiana, 200 less than a year ago in late cabbage.

Few Oppose TB. Eradication, But They Are Hard to Handle

Only a few people are opposed to regulating traffic in tuberculous live stock, but their opposition is sometimes effective, and several cases of the kind have been traced by the United States Department of Agriculture. However, the department believes that cattle dealers who do not favor tuberculosis eradication are influenced by selfish motives and do not represent the true spirit of live-stock owners and others interested in healthier and better domestic animals.

Although many States have suitable laws to protect farmers and other live-stock owners against traffic in tuberculous animals, the practice continues in some localities. Here is an instance: In Massachusetts a purebred Holstein cow, valued at $100, was disposed of as a reactor; but instead of being slaughtered or segregated she was later sold to a State institution for $300. The herd at this institution had previously been free of tuberculosis. It was being improved by the purchase of new animals, and every available precaution was taken to see that they were healthy. Recently this herd was retested and three reactors were found, one of which was the cow in question. All showed well-marked lesions of tuberculosis on post-mortem examination.

There is no law or regulation in Massachusetts preventing the sale or requiring the segregation of reactors. A few cattle dealers led the opposition to a bill before the last general court providing for the control and sale of animals reacting to the tuberculin test. Owing to the importance of eradicating tuberculosis from live stock, the Department of Agriculture is furnishing to the public full information regarding the nature of the disease and the way to get rid of it.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

BOYS' AND GIRLS' CLUBS WORK ON ADULT PROBLEMS

Very important improvements in farm practice are frequently introduced into a county through the medium of the boys' and girl's dairy, beef, poultry, or pig clubs, specialists in club work in the United States Department of Agriculture point out. In one county in California purebred swine have been developed by the boys and sold to over 80 per cent of the farms of the county. Farmers who are doubtful concerning the wisdom of any innovation suggested by the county agent often approve when they see the results obtained by the boys.

"We can think of the boys under 20 in a community as either the 'ins' or the 'outs,'" the specialists say. "Those from 6 to 14, who are still in school, are the 'ins.' Our work is more directly with the 'outs'—from 14 to 20—the 600,000 boys in the 33 Northern and Western States who should have some sort of instruction and stimulus to accomplishment, because they have dropped out of school. Our theory can be illustrated by these apparently equivalent statements:

20+50=?
50+20=?

"The 20-year-old boy, helped and guided to good practices, has some likelihood of using what he learns for the ensuing 50 years of normal life expectancy; but if work is begun first with the 50-year-old father, even if he is equally capable of adapting himself to new ideas—which is seldom true—he can have but 20 years or less, according to expectancy calculations, in which to use what he has acquired."

ALL MEMBERS COMPLETE THEIR WORK IN IDAHO CLOTHING CLUB

The band turned out recently in Twin Falls County, Idaho, to lead a procession of 180 girls who didn't change their minds. They were clothing club girls organized by the county club agent of the United States Department of Agriculture and the State Agricultural College. The original enrollment of the club was 180 members, and each one completed all of the work assigned. No wonder everyone who could appeared for the "achievement day" celebration in honor of their 100 per cent completion record!

These girls not only made garments but put their clothing work on a business basis. Each one began by making an inventory of her wardrobe. She listed what she should add to it, estimated the cost, planned what would be best for her to make during the year, and then set about securing results as a part of her club program. The girls proved to their families that their work was an important factor in extending the family income, and they demonstrated to all the other girls of the county how to dress well at small cost.

Products Worth $27,505 Put Out By Guam Boys' and Girls' Clubs

The second year of the boys' and girls' club work in Guam was completed on March 15, 1921. The total enrollment in all clubs at the end of the season was reported by the United States Department of Agriculture to be 1,291, of whom 88.6 per cent completed the year's work and submitted reports to the extension agent. The value of all the products produced during the year was $27,505.15, or an average of $24.02 for each reporting member. The members of the different clubs produced 3,032.7 bushels of corn, 28,420 pounds of beans, 19,193 pounds of garden vegetables, 143,865 pounds of root crops, made 16,975 pounds of copra, and raised 513 pigs and 12,453 chickens.

At the annual Guam Fair held at Agana February 3 to 5, 1921, out of 1.328 agricultural and stock exhibits, 574 were made by members of the boys' and girls' clubs, and 7 community exhibits were made under the stimulus of the experiment station. The quality of the exhibits was said to be superior to any former fair and in some classes the competition was very close. All the school gardens but one made exhibits at the fair. The failure of one school garden to make an exhibit was due to the illness of the garden supervisor. The value of the products of the 12 school gardens was $353.53 with quite a number of vegetables not ready for harvesting at the close of the report.

Eight district fairs were held during the year, the total number of all exhibits being 6,250. These fairs are said to have aroused great local interest in agricultural matters. The reduction of the appropriation for the Guam Experiment Station makes it impossible to continue the work of the extension agent on its previous scale.

HIGH-SCHOOL GIRL SHOWS ABILITY WITH DAIRY HERD

Elizabeth Farley is a 17-year-old club girl, a senior next fall in the high school at Amherst, Mass. About four years ago, after experimenting with the 4-H garden and poultry clubs of the United States Department of Agriculture for several years, she decided to purchase a cow. Her father attempted to discourage her, saying that she had no knowledge of milking and no place to house an animal. Her father went away for a week-end trip, however, and when he returned he found that Elizabeth was the owner of a registered Jersey cow which she had learned to milk, and for which she had rented a stall in a neighbor's barn. Profits from previous poultry work supplied the funds for this venture.

Elizabeth remained in club work and because of the demand for milk purchased other registered cows and calves. For two years the cattle had to be staked out every day in a pasture 10 minutes' walk from the house, and as the pasture brook dried up she had also to carry water to them. One cow nearly died of sickness. Until a year ago Elizabeth did all of her own work, including delivering the milk.

Her next live-stock venture was a bred registered Chester-White sow. This sow had a litter of 13 pigs, 10 of which lived, although the sow became sick and died later. Then Elizabeth purchased 200 day-old chicks. As they grew she sold the cockerels and some of the pullets, reserving the others for winter laying. A year ago she found that she needed pasture and bay land so she bought 12 acres of land, for which the cows are paying.

At the present time this high-school girl has 9 purebred Jersey cows and 4 calves valued by specialists in the Agricultural college at $3,000. She hires 2 boys to help care for the herd and milk the cows. She delivers 80 quarts of milk daily in an old milk wagon which she bought this summer for $5 and repaired herself. She grows her own feed on her own land.

In addition to her dairy herd she has a large flock of chickens, a number of purebred pigs, and a horse. Her entire indebtedness is one note for $300. Elizabeth is planning to go to the Massachusetts Agricultural college as soon as she has finished high school.

APPROPRIATION TO ENFORCE PACKER LEGISLATION ASKED

(*Continued from page 1.*)

packer. Either the packer or the Secretary may carry the case to the Supreme Court of the United States.

The law safeguards the packer against criminal prosecution until he has been cited to a hearing, has been given an opportunity to be heard, has been found to be guilty, and has been ordered to discontinue the illegal act, and he may then appeal to the courts. In other words, the offense for which the packer may be criminally punished is that of failing to comply with the Secretary's order after he has exhausted his rights of appeal and has been denied relief.

Packers are required to keep such accounts, records, and memoranda as will fully and correctly disclose all transactions in their business, including the ownership of such business by stockholding or otherwise. If it is found that these accounts do not fully and correctly disclose such transactions, the Secretary is authorized to prescribe the manner and form in which they may be kept. Failure to keep such accounts as prescribed subjects the packer to fine or imprisonment, or both.

Trade Commission's Functions Transferred.

The powers of investigation of the organization, business, conduct, practices, and management conferred upon the Federal Trade Commission are conferred upon the Secretary of Agriculture with respect to packers, and all of the duties and obligations imposed by that act upon any corporation being investigated by the commission are imposed upon a packer who may be under investigation by the Secretary of Agriculture. Hereafter, the Federal Trade Commission, except with respect to any complaint which may have been filed by the commission prior to the enactment of the law, will exercise none of these investigational powers unless asked to do so by the Secretary.

Nothing in the act shall be construed to prevent or interfere with the enforcement of the antitrust laws or with any investigation pending at the time the bill becomes effective, or with the power of jurisdiction of the Interstate Commerce Commission which it may have under existing law.

The Secretary of Agriculture is vested with the power to make such rules, regulations, and orders as may be necessary to carry out the provisions of the law.

This is the essence of the act so far as it relates to the packers. It applies also to stockyards and commission merchants.

The stockyard is defined as any place, establishment, or facility commonly known as stockyards, conducted or operated for compensation or profit as a public market, but stockyards of less than 20,000 square feet, exclusive of runs, alleys, and passageways are excluded.

A stockyard owner is defined as a person engaged in the business of conducting or operating a stockyard.

A market agency is defined as a person engaged in the business of buying or selling live stock at a stockyard on a commission basis, and a person furnishing such yard privileges.

A dealer is defined as a person, not comprehended within the definition of a market agency, who is engaged in the business of buying or selling live stock at a stockyard, either on his own account or as the employee or agent of the seller or buyer.

The act includes not only transactions with respect to services rendered in interstate commerce, but any transaction having in prospect the ultimate transportation in interstate commerce.

Must Give Public Notice.

The Secretary must give public notice of the bringing of stockyards under the provisions of the law. Commission merchants, persons furnishing stockyard services, and dealers at yards coming within the act must register with the Secretary their names, addresses, and character of business, and must establish, observe, and enforce just, reasonable, and nondiscriminatory regulations and practices, and furnish services at just, reasonable, and nondiscriminatory rates, and file with the Secretary and print and keep open to public inspection schedules of their rates and charges and any rule or regulation which in any manner may affect or determine any part of the aggregate of such rates or charges. They are forbidden to charge, demand, or collect a greater or less rate or charge than is specified in the schedules filed and in effect at the time the services are rendered, and must not extend to any person any services except those specified in the schedules. Cooperative associations of producers, however, may return to their members, on a patronage basis, their excess earnings on their live-stock transactions. No changes can be made in the rates or charges except upon notice to the Secretary and to the public, and then only under the supervision of the Secretary after hearing.

Failure to comply with the requirements and regulations or orders of the Secretary subjects the offender to civil and criminal penalties and in addition makes him liable to a proceeding for damages by the person injured thereby. Dealers who violate any of the requirements applicable to them are subject to similar proceedings for damages. Such proceedings are enforced either by complaint to the Secretary or by suit in any district court, and any award made by the Secretary in such proceedings is made the basis of a suit in court.

If, after hearing or independently, the Secretary is of the opinion that any rate, charge, regulation, or practice of a stockyard owner, commission merchant, or person furnishing stockyard services is or will be unjust, unreasonable, or discriminatory, he may determine and prescribe just and reasonable rates or charges and make appropriate orders to enforce them.

Required to Fix Rates.

Whenever the Secretary, upon his own initiative or upon complaint of any person, including a stockyard owner, live-stock commission merchant, or person furnishing stockyard services, after hearing finds that any rate, charge, regulation, or practice causes any undue or unreasonable advantage, prejudice, or preference between commerce wholly within the State and interstate or foreign commerce or causes any undue, unjust, or unreasonable discrimination against interstate or foreign commerce he is required to prescribe the rate, charge, regulation, or practice thereafter to be observed, to the end that such advantage, preference, or discrimination be removed—any law, decision, or order of any State or State authority to the contrary notwithstanding.

Stockyard owners, live-stock commission merchants, and others are forbidden to engage in any unfair, unjustly discriminatory, or deceptive practice or device in connection with the receiving, marketing, buying, or selling on a commission basis or otherwise, feeding, watering, holding, delivering, shipping, weighing, or handling live stock, and the Secretary is authorized after hearing to order the discontinuance of any such practice or device.

Persons who knowingly fail to obey the orders of the Secretary are subject to suit by the United States for the recovery of $500 for each offense, and obedience to the orders shall also be enforced by injunction or other mandatory process of a court of equity. The orders of the Secretary are subject to judicial review.

As with the packers, stockyard owners, commission merchants, and others are required to keep such accounts as will disclose all of their transactions, including the ownership of such business. If such accounts do not fully disclose such transactions the Secretary is authorized to prescribe the manner and form in which they will be kept.

The powers of investigation heretofore exercised by the Federal Trade Commission with respect to stockyard owners, commission merchants, and others mentioned are conferred upon the Secretary of Agriculture. Hereafter the Federal Trade Commission will exercise none of these investigational powers except upon the request of the Secretary.

Dried-Apple Pomace for Dairy Cows—Succulent Feed Gives Good Results

Dried or "evaporated" apple pomace as a succulent feed for the dairy cow is the subject of a preliminary report from the Bureaus of Chemistry and Animal Industry of the United States Department of Agriculture based on an experiment to determine the feeding value of dried-apple pomace, especially its suitability as food for cows in lactation. Preliminary results are reported because of a large number of inquiries on the subject.

Pomace May Be Dried and Kept.

The text of the report follows:

It appears there is a belief among dairymen that the dried product has a tendency to cut down the milk flow, or even cause cows to go dry, although apple pomace fresh from the cider press is generally recognized as being a good succulent feed for milk cows. To test the soundness of this belief a feeding trial has been carried out by the department. Only one cow was used in this test, and the total quantity of dried pomace fed was less than 400 pounds; therefore it must be borne in mind that the results obtained, while indicative, can not be accepted as conclusive.

In this feeding trial the dried-apple pomace was fed wet and its feeding value compared with that of corn silage, since it is intended to be a succulent feed. The pomace was prepared by adding to the dry material three times its weight of water several hours before feeding, thus producing a feed similar in water content to that of corn silage.

For a period of 30 days the cow received a balanced ration consisting of grain, hay, and corn silage. The silage was then replaced by the apple pomace for a similar length of time, allowing a 10-day transition period for the change in diet, and after a like transition period at the end of 30 days the original ration containing silage was resumed and continued for a third 30-day period.

The quantity fed—36 pounds of wet pomace per day—was such that the total dry matter in the pomace equalled the weight of dry matter in the silage replaced. The quantities of grain and hay fed remained practically constant throughout the whole experiment.

While the data obtained are not sufficient to warrant the drawing of final and definite conclusions, the indications are that no bad effects follow the feeding of dried-apple pomace. There was no decrease in the milk flow nor in the yield of butterfat.

Equal to Good Corn Silage.

When fed as described the dried pomace appeared to be equal, pound for pound of dry matter, to good corn silage as a succulent food for this dairy cow. Owing to the property which it possesses of absorbing large quantities of water and swelling, it should never be fed dry, but should be allowed to soak in water for an hour or so before feeding. The pomace appears to be a palatable feeding stuff.

Caution is advised in feeding dried-apple pomace, as there is a possibility that the feeding of large quantities, or of quantities containing excessive amounts of apple seeds, might prove injurious. It appears to be safe, however, to feed as much soaked pomace by weight (1 part dried pomace to 3 parts water) as it would be to feed the same amount of pomace fresh from the cider press.

ROAD PATROLLING BETTER THAN REPAIR GANG SYSTEM

The road patrol system used in Grant County, Wash., is pointed out by the United States Department of Agriculture as an illustration of how highways can be maintained most successfully and economically. Other counties in the State use the "gang" system, assigning to each gang a long section, upon which they make repairs at intervals, seldom reaching all the necessary points. In Grant County the plan is to prevent a road from getting into bad condition rather than to make repairs.

There are 13 patrol sections, each from 6 to 10 miles long, in the 87.83 miles of county highways. Each section is in charge of a patrolman, who works constantly on his piece of road, feeling that he alone is responsible for its condition. While these men work under the direction of the county engineer, the details are left largely to their judgment.

A specially constructed light road machine, called locally a "road fixer," is used. It has a long wheel base and two cutting blades rigidly connected with the carrying frame of the machine. The rear wheels are on separate axles, controlled by separate levers. The patrolman carries the necessary small tools for clearing weeds, trimming shoulders, cleaning ditches, and for handling surfacing material. He makes his own repairs in the county repair shop under the direction of a skilled mechanic.

The annual cost of this system, states the Bureau of Public Roads, averages $223 a mile, which is less than other counties pay where roads receive attention "only when they need it." Grant County has graveled roads second to none in the State, and its people are enthusiastic supporters of the patrol system.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended August 24, 1921:

A Study of the Factors Affecting Temperature Changes in the Container During the Canning of Fruits and Vegetables. By C. A. Magoon and C. W. Culpepper, Office of Horticultural and Pomological Investigations. Pp. 55, figs. 57. Contribution from the Bureau of Plant Industry, Aug. 17, 1921. (Department Bulletin 956.) Price, 15 cents.

Bureau of Animal Industry. No. 171. July, 1921. Pp. 69–76. Price, 5 cents.

Bureau of Chemistry, Supplement 116 (N. J. 9251–9300). Pp. 181–222. Aug. 19, 1921. Price, 10 cents.

Soil Survey of Cedar County, Iowa. By A. M. O'Neal, jr., and D. S. Gray. Pp. 35, fig. 1, map. (From F. O. Soils, 1919.) Price, 15 cents.

Journal of Agricultural Research. (For sale only) Vol. 21, No. 9, Aug. 1, 1921. Contents: Studies in the Physiology of Parasitism with Special Reference to the Secretion of Pectinase by Rhizopus tritici (G–240). By L. L. Harter and J. L. Weimer. Respiration and Carbohydrate Changes Produced in Sweet Potatoes by Rhizopus tritici (G–241). Wound-Cork Formation in the Sweet Potato (G–242). By J. L. Weimer and L. L. Harter. Two Sclerotium Diseases of Rice (G–243). By W. H. Tisdale. A Biological Study of the Red Date-Palm Scale, Phoenicococcus Marlatti (K–98). By Arthur D. Borden. Red Date-Palm Scale Phoenicococcus Marlatti: A Technical Description (K–99). By Harold Morrison. Some Observations Regarding Eosinophiles (Nev–1). By Lewis H. Wright. A Souring of Beef Caused by Bacillus Mesentericus (A–60). By Hubert Bunyea. Pp. 609–698, pls. 13, figs. 3. Price, 15 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

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20 COUNTRIES SHOW WHEAT CROP OF 2,461,430,000 BUSHELS

Not So Satisfactory as Was Expected During the First of the Season

Prospects for the World's Supply, However, at Present Time Show No Cause for Serious Alarm—Hopelessness of Russian Crops a Very Unsatisfactory Feature

Prospects for the world's wheat supply, while not so satisfactory as was expected during the first part of the current season, show at the present time no cause for serious alarm. Estimates of the quantity of wheat harvested in 20 countries, including the United States, for 1921, total 2,461,430,000 bushels, compared with 2,384,143,000 bushels harvested last year, according to data compiled by the Bureau of Markets and Crop Estimates, United States Department of Agriculture.

The 20 countries included in this estimate are the United States, Canada, Argentina, Chile, Uruguay, Belgium, Bulgaria, Finland, France, Greece, Hungary, Italy, Spain, British India, Japan, Algeria, Tunis, Union of South Africa, Australia, and New Zealand. These countries produced approximately 68 per cent of the known wheat crop of the world during the years 1903–1913, according to the annual average production records of the bureau.

Drought Was Serious Menace.

Although the long-sustained drought throughout the greater part of the Northern Hemisphere was a serious menace to the various crops in many countries, the fall-sown wheat has not been affected adversely so much as was at first supposed. On the contrary, the fall-sown wheat managed to obtain a firm hold on the soil and a fairly vigorous growth before the beginning of the drought.

Nearly all of northern and central Europe will have larger wheat crops this year than last, according to the last estimates made by the bureau, Belgium and Greece being the only countries in which smaller crops are expected.

Outside of Europe, British India was most seriously affected by the drought. The dryness and the hot winds that have prevailed throughout most of the growing season have resulted in the very low yield of 250,469,000 bushels of wheat, or about 50,000,000 bushels less than the quantity normally consumed in that country. With the rice crop also seriously affected, India is expected to import wheat this year instead of exporting it. In an average year before the World War, India exported over 50,000,000 bushels of wheat.

GREAT SAVING IN PHOSPHATE POSSIBLE BY NEW PROCESS

The United States owns the richest and most extensive phosphate fields in the world. Heretofore heavy annual wastes of valuable phosphatic material have occurred during the mining and manufacturing processes. A new method of controlling these losses devised by the United States Department of Agriculture consists in mixing the "run-of-mine" phosphate with sand and coke and smelting the mass in an electric or fuel-fed furnace. In this process, the phosphoric acid is driven off as a fume and may be readily collected in concentrated form. Millions of tons of phosphates previously wasted will be saved potentially as a result of the perfection of this new reclamation system.

In Canada the total yield of spring wheat is estimated at 273,020,000 bushels, of which 264,137,000 bushels were grown in Saskatchewan, Manitoba, and Alberta. Fall wheat, grown almost exclusively in Ontario and Alberta, was estimated at 15,473,000 bushels. The total wheat yield of Canada for 1921 is therefore 288,493,000 bushels, compared with 263,189,000 bushels last year.

Russian Crops Hopeless.

A very unsatisfactory feature in the present international situation is the hopeless condition of the Russian crops. Unofficial reports state that during last autumn and the spring of this year only

(*Continued on page 8.*)

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PREPARING TO ADMINISTER AGRICULTURAL RELIEF ACT

Director of War Finance Corporation Says Products Must Be Marketed Over Longer Period.

Quotes Investigator for U. S. Department of Agriculture, Who Finds Sentiment in Europe That Mills Should Buy Cotton Only as They Can Sell Goods Profitably.

Eugene Meyer, jr., managing director of the War Finance Corporation, on August 27, made the following statement:

"The War Finance Corporation is actively engaged in perfecting plans for the administration of the agricultural relief act, which was passed by the Congress and approved by the President on Wednesday. As soon as these plans are in final shape, they will be announced, and, at the same time, full information will be given regarding the procedure that should be followed in making application for advances."

Means Much to Agriculture.

"The agricultural relief act," said Mr. Meyer, "is a measure of great significance to our agricultural interests. It is a very constructive piece of legislation, and, in my opinion, is thoroughly workable from the administrative point of view. It recognizes the new conditions existing in our international and domestic trade and aims to meet these conditions by giving the War Finance Corporation power to assist in financing the carrying of agricultural commodities until they can be marketed in an orderly way. The inability and unwillingness of foreign merchants and manufacturers to purchase the greater part of their requirements for the year during the period immediately following the harvesting of our crops, as they are accustomed to do in normal times, coupled with the failure of our own merchants and manufacturers to carry normal stocks, has brought about a situation which makes it necessary for us to market our staple agricultural products over a longer period than usual. This

situation is clearly indicated in the following extract from a report from an investigator of the Department of Agriculture, who is now in Europe studying the markets there for American agricultural products:

"'The cotton merchants over here in the countries visited do not think it sound business for American shippers or banks to advance too much credit to the cotton mills. They say that the mills can arrange the necessary credits with local banks to buy cotton if only they can show an outlet for the goods; that extending liberal credit from America will tend to increase the risks assumed by the mill and may lead to speculative ventures on the part of the mills.

"'These merchants point out that mills should buy cotton only as they are able to sell goods profitably and then that the mill should cover its requirements with cotton close at hand. They go so far as to say that the merchant should sell cotton on call for the mill to fix the price when the goods are sold. This suggestion seems unsound to me, as it involves too great a risk for the seller, making him take chances which rightfully fall on the manufacturer. But, at any rate, the suggestion that reasonable stocks should be placed in the leading European markets and hedged in dollars seems sound. The price can be fixed when the sale is consummated and at a rate of exchange which is taken into consideration when the price is determined. These merchants point out that they can not carry large stocks as in former years, as a change in the rate of exchange might cause serious losses, and that therefore they must of necessity buy cotton only as it is needed. If they follow out this plan it will mean safe business to European mills, but a slow and long-drawn-out cotton season back in America, and cotton growers might as well make their plans to market their crop gradually as the demand warrants.'

Aims to Stabilize Marketing.

"The pressing need at the present time, therefore, is for additional facilities to finance our staple agricultural products so that they can be marketed more gradually than formerly. The agricultural relief act aims to provide these facilities along sound lines and in a way that will be helpful not only to the producers themselves, but also to the whole business of the country.

"It should be clearly understood that the act is an emergency measure, designed to meet the abnormal conditions now confronting us. Experience in connection with its administration, however, should enable us to determine to what extent, if any, additional financial machinery of a permanent character is necessary to take care of the marketing of our staple agricultural products in an orderly way under normal conditions."

Rise and Fall in Food Prices After War Repeats History of American Conflicts

The family man whose income did not increase between 1914 and 1918 was in a bad way. Everything he needed, and all the things he and his wife and children believed they ought to have to be happy, became so costly that a new system of living had to be adopted. Millions, perhaps, changed their diet by reducing animal foods, and meats of all kinds, and increasing the use of grains and vegetables; and, incidentally, a very large number have not gone back to the old schedules.

Wholesale Prices Doubled.

Compared with the 5-year average before the World War, wholesale prices in 1918 had doubled, or were represented by 200 as an index number from which to figure. Many commodities were higher and many were lower than this figure would indicate. However, any product that had not doubled in price in those days was relatively cheap, and anything that had more than doubled was relatively high priced. Prices, it will be seen, are high or low entirely by comparison. The man who went back into history for his information and guidance in preparing for what he might reasonably expect to encounter in 1918 or 1919 learned that the rise and fall of prices in the period after the World War bore a striking similarity to the same rise and fall after the War of 1812 and after the Civil War. In each case the highest price level was reached after the war closed, and in each case there was an extremely violent drop. Department Bulletin 999, just issued by the United States Department of Agriculture as a contribution from the Bureau of Markets and Crop Estimates, shows that the rise in prices during the World War was much the same as during the Civil War period, but continued longer after the close of the war, and resulted in a more violent drop than occured after either the War of 1812 or the Civil War.

After each of the previous wars a very violent drop in prices occurred, followed by recovery in part and somewhat stable prices for a year or more, followed by a longer but less violent drop, and again followed by a period of somewhat stable prices. The drop in prices of farm products after the World War, as shown in the bulletin referred to, began slowly, increased in rapidity, then dropped more gradually, and by June, 1921, had apparently completed its downward course, at least that part which might be described as violent. To judge by Civil War days and by the slow rate of recession now, some price recovery is to be expected in the near future. This does not mean that all prices will rise. When more products rise in price than fall, the general price level will rise, but many products will be going down. It is to be expected that those that have dropped excessively will rise, and that prices of most things much above the general price level will fall.

The bulletin gives many pages of comparison of wholesale and farm prices. A cheerful forecast is found in this sentence: "Many farmers can not avoid failure, but courage and perseverance will carry many others through seemingly impossible conditions, and will do much to bring back normal times."

CLASSING COTTON BEFORE SALE BRINGS GROWERS ADDED PROFIT

A profit of $4,125,000 to cotton growers is the value put upon the demonstrations of cotton marketing conducted at 85 substations maintained within the last fiscal year by the United States Department of Agriculture in cooperation with the State extension service and community organizations of cotton growers. Community organizations pay all the expenses of the substations, including the salary of the local classer, who is employed by the Federal department at a nominal salary of $1 a year.

These local classers have classed approximately 450,000 bales of cotton within the year. In each case such information as was indicated as to methods of selling and the factors influencing the grade, and therefore the value of a particular bale was given the grower with a view to encouraging the production of a superior article and improving the package and method of handling and selling.

Increases in prices received ranged from half a cent to 6 cents a pound, depending on the locality and whether the growers sold individually or collectively. Approximately 60,000 bales of cotton were sold collectively at an average gain of 4 cents a pound.

SEPTEMBER TIME TO SELECT SEED CORN FOR NEXT SEASON

Stalks Standing in the Field Offers Best Opportunity for Intelligent Selection.

Various Methods Used By County Agents in Northern and Western States to Demonstrate the Wisdom of Field Selection—School Children Aid Work in Indiana.

Seed corn for next season's planting should be selected in the field from the standing stalks in September. The disappointing search for good seed corn every spring should be a sufficient reason for following this practice, strongly advocated by the United States Department of Agriculture. Any intelligent farmer can go into his own cornfield when the corn is mature and select high-grade seed if he has planted suitable types of corn and cultivated properly. If he has joined a county movement to develop certain standard varieties of corn which grow in that locality, and if he has raised these strains on his own land, he may reasonably expect a market for any surplus seed.

County Agents Report Progress.

Various methods were followed last fall by the county agents of the Northern and Western States in their efforts to convince the farmers that field selection of corn was a good thing which would amply pay for any trouble involved. Similar tactics may well be used this season where for one reason or another the local people are not in the habit of field-selecting their seed corn.

In Steele County, Minn., selection between September 10 and September 20 was urged. The week of September 24 was chosen as "good seed corn week" in Nance County, Nebr. It seems likely that the corresponding dates this year will be the best time to go out into the field and choose the most promising ears, noting the character of the plants on which they grow and the details which indicate a vigorous and healthy condition.

The county agent for Dakota County, Minn., reports that a permanent and reliable source of seed corn is being developed by getting certain farmers in the county to specialize in seed corn work. They are asked to produce a dependable type of improved corn and to put in facilities for drying and storing it properly. The average farmers are also encouraged to select their own seed, but the definite work of safe-guarding the seed corn supply of the county is being carried on with a few men who are really competent to produce certified seed corn and equipped to handle it. Eventually it is hoped that there will be a man in every township doing this seed corn work and, where possible, having seed corn houses in which to dry it.

In Scott County, Minn., last year, 4,300 acres of selected seed were planted. For their 1921 planting 32 farmers field-selected their seed corn, and all had a surplus to sell. Stearns County has 31 cooperators in seed corn work. Minnesota No. 13, Rustless White Dent, and Northwestern Dent were the varieties used. Some of this certified seed was awarded to 30 farmers with their farm bureau renewal, thus insuring a good distribution for this year. The boys and girls of the county include field selection of seed corn in their club work.

Indiana Has School-Children's Contest.

Indiana has been especially active in emphasizing the importance of having every farmer field-select his seed corn from the standing stalks. The July report of the county agent leader for Indiana states that in White County a unique proposition was placed before the children in six rural township schools this spring. The pupil and father were to pick out the best bushel of seed corn to be found in the seed at home. This was to be planted on one side of a field, for identification. Then this fall the pupil is to pick out 30 or 40 ears from the standing stalks for seed, and later in the winter bring the best 10 ears to the local county schools where shows will be held. The best 10 ears from each school will then compete with the other schools of the township and the best from the town with the rest of the county. Six hundred and thirty-nine youngsters promised to try.

The agent for Washington County, Ind., mailed circular letters and publications on the subject to all the farmers of his county in the fall, and had demonstrations given at the schools for the younger generation. The rural teachers in this county include seed selection of corn as a project in their agricultural work.

In spite of the development of a very successful central seed corn testing association in Rush County, Ind., for several years, it is the opinion of the county agent that the testing alone can not be depended on for eliminating corn diseases. Soil conditions and the heredity of the seed corn are factors which affect the growth of the corn, and the latter of these can be controlled by more careful selection of seed corn in the fall from the field.

Field Selection in Some New Places.

A great deal of interest was manifested in six field demonstrations of seed-corn selection held in Cass County, Mo. This line of work was entirely new to many of the farmers present. Those who participated in the 260 bushels selected were further convinced of the value of early seed selection from the stalks, because of the adverse weather conditions later in the fall. The autumn season was abnormally wet in this section, and the corn matured slowly; then an early freeze in November caused a low percentage of germination in seed selected haphazard in the ordinary way after gathering the corn.

In Mississippi County, Mo., the work done in relation to the field-crops project in 1920 was mainly concentrated upon field selection of corn. This was carried out through community meetings which were held in cooperation with the county school superintendent. The advantages of the method to the individual farmer were considered paramount, and the improvement of seed corn in the county was also stressed. The demonstrations showed also how field selection would help to eliminate corn-root rot, if ears were selected from stalks that were vigorous and not ripening prematurely and on shanks that showed no evidence of decay. Points to observe were indicated, such as the height of the ear on the stalk, and the way in which the ear hung, and the importance of selecting seed from stalks of medium height which appeared to be strong and vigorous. In this connection also the proper storage and the running of germination tests to insure better stands of healthy plants was emphasized. About 65 farmers, only one of whom had ever before made a practice of field selection, assured the county agent that they would field select portions of all their seed for next spring's planting, according to the principles advocated.

Cooperation by Written Agreement.

The county agent for Huerfano County, Colo., visited 20 farmers last year who were among the foremost corn growers, and made written agreements with each, whereby they promised to raise their corn according to the usual method of cultivation, select seed corn in the field and store it in a dry place where the air would circulate. These fields were all visited by the county agent during the summer and an accurate estimate made of the percentage of stand each had, thus showing the men of what importance it was to plant seed corn that germinates 100 per cent.

Emphasis on field selection of seed corn has been general in all the States where corn is an important crop, and many interesting notes on the progress and reception of the work are found in the reports from Ohio, Nevada, New Mexico, Connecticut, Idaho, Illinois, Kansas, New Jersey, New York, Pennsylvania, South Dakota, Utah, and Washington. Many germination tests have been made, and there are frequent school contests to bring to the attention of boys and girls in club work the need for good seed corn.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

GREAT ACTIVITY EXPECTED IN RADIO NEWS OCTOBER 1

With the approach of cold weather renewed activity in the radio market news service is planned by the Bureau of Markets and Crop Estimates, United States Department of Agriculture, for the eight months beginning October 1. Atmospheric conditions are unfavorable to radio communication in warm weather, and many amateurs and experimenters discontinue their operations during the summer.

It is expected, however, that with the coming of autumn the interest in radio activity will increase. Many States have shown keen interest in the development of radio news service covering market, crop, and weather reports. State cooperation is planned by the bureau and will be taken up with the various States within range of the radio stations.

The States that cooperate will be asked to determine the agency or agencies that are to work with the Federal bureau in order to prevent duplication of effort. The handling of news matter will necessarily vary with the different States, depending on administrative organization, geographical position, climate, and other factors.

DEPARTMENT PIGEONS HOLD RECORDS FOR ALL DISTANCES

The effect of United States Department of Agriculture methods in breeding homing pigeons was shown when birds from the department lofts at Beltsville, Md., took first, second, and third honors in the 400 and 500 mile races, flown recently. The 400-mile race was from Deshler, Ohio, to Washington, with 112 birds from 24 lofts competing. Department pigeons covered the distance at the rate of 1,403 and 1,402 yards per minute, the nearest competitor's record being 1,379 yards. The 500-mile race was from Nappanee, Ind., with 98 birds from 14 lofts, and the department pigeons made records of 1,092, 1,091, and 1,085 yards per minute. This race was flown in a high wind. Last year the department's pigeons took first, second, and third honors in both 200 and 300 mile flights. In the three years in which the department's birds have competed they have taken first, second, and third prizes from every station.

ONE FARM OUT OF THREE IN UNITED STATES HAS MOTOR CAR

Nearly every third farm in the United States had at least one automobile on the first day of last year. Of the 6,448,366 farms in the United States, 1,979,564, or 30.7 per cent, reported having automobiles to the number of 2,146,512. Although Iowa led all other States in the number of automobiles on farms, having 177,558, Nebraska, with 104,453, showed the highest percentage in relation to the number of farms, heading the list with 75.6 per cent.

Motor trucks were reported on 131,551 farms in 1920, or about 2 farms out of every 100 in the United States as a whole. The number of motor trucks on these farms was 139,169. The States leading in the number of motor trucks on farms are: Pennsylvania, with 9,372; New York, with 9,259; Iowa, with 8,910; Ohio, with 7,319; Nebraska, with 6,548; California, with 6,416; and Illinois, with 6,154.

Three and six-tenths per cent of the farms in the country were reported as having tractors on January 1, 1920. This is about 1 farm out of every 28. The 229,334 farms thus represented had a total of 246,139 tractors.

Telephones were reported on 2,508.002 farms, or 38.9 per cent of all farms in the United States, in 1920. More than one-half of the farms in the following States had telephones: Iowa, Kansas, Nebraska, Illinois, Indiana, Missouri, Ohio, Minnesota, South Dakota, Wisconsin, Vermont, Connecticut, Massachusetts, and Oregon. Iowa, with 183,852, showed the largest number.

Farms reporting water piped into the house in 1920 numbered 644,088, or about 1 farm out of every 10. The percentage was highest in the New England States and in California. The States leading in numbers were as follows: California, 65,928; Pennsylvania, 46,402; New York, 45,487; Ohio, 41,531; and Texas, 38,580. Gas or electric light was reported on 452,809 farms, or 7 per cent of all farms in the United States.

These figures, gathered by the Bureau of the Census, are being studied by the United States Department of Agriculture in connection with its work along these lines.

FIND PREHISTORIC CORN IN TENNESSEE STONE GRAVES

Corn that grew in Tennessee in prehistoric times, possibly before Joseph put away his seven years' supply in Egypt, was unearthed recently by W. E. Meyer, of the Bureau of American Ethnology, and sent to the United States Department of Agriculture for identification. During recent excavations in Davidson County, Tenn., Mr. Meyer came upon a number of stone slab graves containing mortuary vessels. Some of these held specimens of charred maize in fairly good condition. From the size and shape of the grains it was possible to identify the variety as Many-Rowed Tropical Flint, a form about half way between true flint and popcorn.

The same type of Indian corn occurs in the West Indies, and there is no question in the minds of scientists but that there was a very early communication between the West Indies and North America. Not only corn but beans, squashes, pumpkins, and tobacco are of tropical and subtropical origin. These staples, now so important throughout both hemispheres, found their way into North America and were cultivated beyond the Great Lakes in Canada long before the discovery of America. There is abundant evidence of communication between the West Indies and Florida, and up the Mississippi and its tributaries.

INSPECTORS EXAMINE NAVY STORES.

The United States Department of Agriculture is seeing to it that Uncle Sam's sailor boys are getting good food. During the past year its inspectors examined a total of 29,880,376 pounds of fruits and vegetables for the Navy. The inspections were made at New York, the Great Lakes Training Station, and San Francisco during the entire year; at Boston from November 7, San Diego from January 26, Norfolk from February 8 to June 15, and at Philadelphia since April 1. Of the amounts inspected, 2,032,359 pounds were rejected, cuts amounting to 114,982 pounds were made, and 35,014 pounds were found to be short weight. In addition to this work for the Navy, 1,332,472 pounds of fruits and vegetables were inspected for the Marine Corps in Boston, New York, Philadelphia, and San Diego.

Experiments Throw New Light on Questions Often Asked Concerning Potato Growth

How do potatoes grow?

Why do some vines produce many tubers and others only a few?

Do big seed pieces produce better potatoes than small pieces?

When does the tuber begin to form?

When does moisture have the most effect on the production of potatoes?

What is the relation of soil to potato production?

Experiments Conducted.

These are a few among many questions which have been asked about the growth and yield of one of America's largest and most distinctive crops, and which former observers have been able to answer only incompletely. The Bureau of Plant Industry, United States Department of Agriculture, has conducted a series of experiments in potato growth, the results of which are published in Department Bulletin 958, Development of Tubers in the Potato, which has just been issued. The information contained is of interest not only to the plant physiologist but also to the practical grower, as a knowledge of the relation of the setting and subsequent development of tubers of the potato may, to a certain extent, be put to practical use.

Tuber formation, it was found, begins in general at about the end of the period of flower bud development, although this is not in all cases an exact criterion. Experiments showed that the number, as well as the size, of potatoes in a hill increased for several weeks after the first potatoes were large enough to dig. A small increase in the weight of tubers was found to occur even after the vines had been killed by frost. The maximum rate of growth of the tubers was found to occur about the last of August or first of September, which was approximately 80 days after planting.

An interesting development of the experiments was that the number and weight of tubers per hill were found to be influenced by the size and the kind of seed planted. Whole potatoes used as seed yielded heavier than half potatoes, and these more than quarters, and the larger the seed piece the greater the yield per hill. A whole potato used as seed yielded more than a half or quarter potato of equal weight.

The experiments showed that apparently light soils are better for potatoes than heavy soils. The lowest production of tubers, with respect to both number and weight per hill, was on the heaviest soil; the highest numbers and yields were produced on the lightest soil. The department thinks it possible, however, that these results might be modified somewhat under different climatic conditions.

Resulted in Increase.

Two-year tests with irrigation indicate that the early application of water before tuber formation had started resulted in an increase in the number of tubers, as well as in the weight per hill. Late irrigation actually increased the weight but made little difference in the number of tubers per hill. The irrigation experiments were not carried to a final conclusion, but indicate that each application of water at almost any period in the growth of the plant, provided excessive quantities are not used, may be expected to produce an increase in the weight of the crop, but that little or no increase in the number of tubers is likely to result from irrigation after tuber formation is well started.

The bulletin contains an interesting description of the tuber-bearing parts of potatoes and their method of growth. It may be obtained free on request to the Division of Publications, United States Department of Agriculture.

"DIXIE BURGOO" WINS SUCCESS AS 4-H SPECIALTY IN SOUTH

The encouragement of canning club girls in the production of special southern dishes attractively prepared for the market has been a feature of extension work throughout the South. The home demonstration agents have found enthusiastic interest in the canning of the dish known as "Kentucky Burgoo," which lately has been taught in Texas, Louisiana, Alabama, South Carolina, and Virginia. It is desirable that any products which the club girls put on the market be distinctive and different from ordinary commercial canned products, and also that the abundant local foods be utilized to the utmost extent. "Dixie Burgoo" is the trade name adopted by the girls for the "4-H" brand of this famous old dish. It meets both requirements, in that it is unusual, and contains in delightful combination foods easily obtained in most southern localities. Originally "burgoo," or "burgout," was the name applied by French sailors to oatmeal porridge; in Kentucky it has long been used to designate a combination of meat and vegetables. The meat formerly included game, such as squirrel and rabit, for which, however, veal and chicken are substituted in the Dixie Burgoo, which contains also the usual vegetables—tomatoes, carrots, onions, celery, and cabbage. Corn has been omitted because of the difficulty of securing corn of uniform quality. The recipe for Dixie Burgoo can be had upon application to the United States Department of Agriculture.

GOLDIE BY NAME, GOLD MINE BY NATURE, WAS LAME COW

Before a certain Missouri farmer joined the cow-testing association, report specialists of the United States Department of Agriculture, he owned a good herd in which was an old crippled cow named "Goldie." At that very time the owner was trying to sell her for $75. To his surprise the Babcock test not only placed poor, old, crippled Goldie at the head of the herd but at the head of the whole association. Her yearly production, as shown by the records was 9,300 pounds of milk and 526 pounds of butter fat, and her yearly earning over cost of feed was $267. Goldie belonged to a herd whose average yearly butter-fat production was 360 pounds, yet she was almost 50 per cent above the average of the herd, and more than 200 per cent superior to the average dairy cow of this country. Among the cows on test in the 468 cow-testing associations are many like Goldie. The true production records furnished by cow-testing associations have prevented the sale of a large number of unassuming but fairly high-producing cows.

DEPARTMENT TO REOPEN STATION.

To aid in the marketing of the late Idaho white potato crop this season the temporary field office of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, will be reopened at Idaho Falls, September 20, and will run until the close of the season about April 15. Homer A. Harris will be in charge of the station and will give all possible assistance to producers, shippers, and others interested in marketing the crop. Daily reports showing carlot movements of white potatoes throughout the United States, together with conditions and prices at shipping points and consuming markets, will be issued during the heavy fall movement. The reports may thereafter be issued only three times a week until the end of the season.

Temperature at Center of Can Important For Successful Preservation of Foods

In canning work one of the most important considerations is the time required for the food at the center of the container to reach the temperature of the retort or water bath in which it is being processed. United States Department of Agriculture Bulletin 956, A Study of the Factors Affecting Temperature Changes in the Container During the Canning of Fruits and Vegetables, which has just been issued, centers attention on these time-temperature relations. The purpose has been to bring out the underlying principles, rather than to lay down definite rules of procedure. The results of this experimentation are of interest to scientific workers in the field, to commercial canneries, and similar large-scale handlers of foods.

Destroys Bacteria.

Successful preservation of foods by canning is due primarily to the fact that in the processing, or cooking, the bacteria and other microorganisms which cause spoilage are destroyed. Since the elimination of these microorganisms is dependent upon the use of heat as a sterilizing agent, it becomes of paramount importance to know just what temperatures and processing periods will destroy them. If uniformly good results are to be expected a sufficient degree of heat must penetrate to all parts of the can or jar and must be maintained long enough to render all microorganisms harmless. Before an accurate judgment as to the proper cooking period can be found it is necessary to know how long a time is required for the heat to reach the food at the center of the container.

The mercury thermometer, if properly calibrated and standardized, has been found sufficiently accurate for practical work. A satisfactory apparatus has been devised for using the mercury thermometer to measure temperature changes at the center of the can.

The fruits and vegetables as processed in these tests fall roughly into two groups with reference to time-temperature relations. The first group consists of those fruits and vegetables, such as string beans, packed so that there is a free liquid filling the interspaces between the pieces of material. The rate of change of temperature at the center of the can in this group is very rapid. The second group consists of materials of a heavy or pastry nature that are packed in such a way that little or no convection can occur, as with corn or sweet potatoes. The rate of change of temperature in this group is very slow. Sometimes mechanical agitation is employed. Variations in the composition of the material, however, have very little effect if the consistency of the material is such that no convection can occur.

Salt Has Little Effect.

Salt has very little direct effect upon the rate of change of temperature in the can. Dilute sugar solutions have only a small effect, but the concentrated solutions retard the rate of change. Solutions of starch also retard it. In 5 per cent starch the consistency becomes such that all convection is stopped and the rate of change is very slow. Other material of a viscous nature, such as protein or pectin, retards the rate of change of temperature. The retarding effect of a glass container is of more importance in the first group than in the second. Glass cools faster than tin in the air but can not be cooled in water.

Differences in the diameter of the container are only of importance in the processing of materials of heavy consistency such as corn. Whether the processing temperature is 100°, 109°, 160°, or 121° C., the temperature of the bath or retort is reached in the container in approximately the same time. Higher temperatures, however, break down the tissues of tomatoes, which are a striking exception to the rule. Both the single period and intermittent processes are studied in this bulletin, which is available upon application to the United States Department of Agriculture.

Black Sumac Leaves in Good Demand for Tanning and Dyeing

Rural residents of regions in western Pennsylvania, West Virginia, Virginia, Maryland, and North Carolina will reap an uncultivated harvest this summer and fall when the leaves and fresh branches of black sumac become ready for use in tanning and dyeing.

Manufacturers of domestic sumac extract inform the Bureau of Chemistry, United States Department of Agriculture, that they will need this year between 300 and 400 carloads of the product. In the sections mentioned, small-scale gathering is feasible, because storekeepers generally act as agents to buy the sumac and sell it to the carload dealers. While sumac is generally distributed throughout the United States, its purchase through local dealers is not organized in other States, so that manufacturers can buy in carload lots.

Only black sumac will be accepted this year, and the leaf must be bright. It is understood that dealers either will not buy low grade at all, or will materially cut the price on it. First-grade sumac must contain no berries and less than 25 per cent of stalks. The price paid the farmer per 100 pounds delivered loose to the country dealer will approximate $1.

Farmers planning to gather sumac this season should immediately consult their nearest dealer or storekeeper, who will advise them fully as to the quantity of sumac he will be able to handle and as to quality required. He will also advise as to bags or other means of delivery.

The United States Department of Agriculture has prepared Department Bulletin 706 on American Sumac, giving detailed directions for the proper gathering and curing of the leaves. Farmers who intend to gather sumac this season and have not a copy, of the bulletin should immediately write for a copy.

SMALL CRAFT WARNINGS HELP POTASH WORK IN CALIFORNIA

Even the weather men like a modicum of praise occasionally, sandwiched in between the habitual grumblings of the American public as to the style and quality of weather meted out from season to season. The Weather Bureau of the United States Department of Agriculture recently received the following letter from those in charge of the work of extracting potash from kelp in southern California:

"I take this occasion to thank you and the members of your organization for the splendid service you have given us during the past four years. Your warnings have been a source of a great deal of comfort and have been of the greatest service to us in enabling us to take precautions upon the approach of storms. We have gotten by during the four years without any damage from the elements, and the success has been due largely to your kind assistance. Your cooperation is most heartily appreciated."

Storm warnings had been habitually displayed along the California coast and small craft warnings whenever they were necessary. The potash plant operated a barge in the open sea, and consequently it was more frequently endangered than a stauncher craft would have been under similar weather conditions. The appreciative letter, which was entirely unsolicited, is illustrative of the dependence of many industries on weather warnings.

Time Has Arrived for Baseball World To Wonder About a Substitute for Ash

According to the United States Department of Agriculture, "Babe" Ruth and his associates who specialize in walloping the horsehide out of the baseball grounds may well begin to ask what kind of bat they will use when the diminishing supplies of ash make it less easy for them to obtain this hitherto favorite material. During the last few years several sporting goods factories have attempted to introduce hickory bats as a substitute for the traditional ash. This has been unsuccessful, however, because hickory, although it possesses greater shock-absorptive qualities than ash, is too heavy.

Has 1,200 Bat Patterns.

One of the greatest curiosities at a leading bat factory is a model room where more than 1,200 bat patterns are kept on display. Each model embodies the individual likes and dislikes of the various players. There are thin bats, portly bats, heavy clubs, light bats, some with handles of unusual shape and design, and some with bodies that resemble bottles. Whenever a professional player orders a new consignment of bats, this factory is able to refer to the special model desired and to pattern the new bats after that particular design. The bats of the big league players are turned out by hand, great care and skill being employed in their production.

The majority of the white ash timber used in making baseball bats is cut from farm woodlots and timber tracts in Kentucky, Ohio, and the Lake and Lower Mississippi States. The timber is cut in the winter, logged, and hauled to the railroad, whence it is transported to the factories, a number of which are located at Louisville, Ky. The ash is cut up in bolt form, each bolt being ultimately converted into a finished bat. After arrival at the factory the bolts are stored in curing sheds for from several months up to a year, in order that the wood may season thoroughly. Skilled workmen ultimately work the bolts up into bats for all grades of ball players, from the stars of the big leagues to the sandlot champions and school players.

According to a standing timber survey made by the United States Forest Service at the request of Congress, present ash resources aggregate approximately 9,988,000,000 board feet. For the most part, these ash assets are scattered over a wide range of woodlands, the ash trees being prevalent in mixed forests of hardwood timber. The Lower Mississippi States have about 3,182,000,000 board feet of ash on the stump at present, much of this supply being old timber. The Central States have about 2,929,000,000 board feet of ash while the Lake States have about 1,893,000,000 board feet, the South Atlantic and East Gulf States 1,256,000,000 board feet, the Middle Atlantic States 513,000,000 board feet, and the New England States 215,000,000 board feet.

High Grade Material Scarce.

Obviously if ash were used solely for the manufacture of baseball bats our leading national game would have no need to concern itself about substitutes for a long time to come. But the industries which use ash are already beginning to find it hard to obtain high-grade material in sufficient quantities to meet their needs, and its price prior to the recent slackening in industrial activity rose rapidly. The entire amount of ash used for sporting and athletic goods forms a very small part of the yearly consumption of this valuable wood, which possesses properties that give it preeminence for several industries. In particular, the vehicle and handle industries have been fierce competitors for ash. Over half the annual cut goes into handles, vehicle parts, woodenware, and novelties.

Ash is unquestionably one of the woods in connection with which the effects of forest depletion will earliest be felt in the form of an actual dearth of material. There are two possible remedies—to grow more ash, and to resort to substitutes. Already the search for substitutes has begun. As for growing more ash, foresters say that with the waning of the virgin supplies the farmer's woodlot is coming to play a larger and larger part in filling market needs and that farmers whose woodland is suitable for ash production will do well to favor this species.

Laminated Bats Successful.

The laminated or two or three-piece bat, originated and perfected by the United States Forest Service, also promises to exert a potential, conservative influence on the white-ash supplies necessary for the production of our best bats. Short pieces of material which otherwise would be worthless for bat construction can now be fitted and joined together with the same kind of waterproof glue that is used in making airplane propellers, so that the finished product is a baseball bat as resilient, springy, durable, and satisfactory as the one-piece variety. Field tests have demonstrated that the laminated bat lasts just as long and is as productive of home runs as the ordinary ash bats made of one piece of timber.

Majagua wood, which comes from Cuba, has been used to some extent during recent years in the making of baseball bats. This is a tight-grained, tough, tenacious, and springy wood, heavier than ash but otherwise not unlike this American timber that has demonstrated its superiority for bat making. Transportation difficulties, as well as trouble in harvesting an adequate annual supply of majagua wood in Cuba, have operated against the popularity of this new wood. Furthermore, baseball players are very conservative about changing their style and type of bats. They have long been accustomed to using ash bats, and the majority of the professional players will be very loath to accept a substitute.

MINNESOTA HAS PICRIC-ACID CAMPAIGN TO TAKE UP QUOTA

A "picric-acid week" in Minnesota is the newest application of the intensive campaign idea. The United States Department of Agriculture has allotted 744,000 pounds of this war-salvage explosive as the proportionate share of Minnesota for land-clearing purposes, to be distributed under the direction of the agricultural engineering and agricultural extension divisions of the University of Minnesota. The week of July 18–23 was designated as "picric-acid campaign week," during which meetings were held in each county to acquaint farmers, bankers, and business men with this opportunity to obtain explosive material free, except for the cost of cartridging and distribution. At these meetings were discussed ways and means of financing and distributing the quota in each county in the shortest time and the best way possible.

The University of Minnesota issued circulars and posters calling attention to the fact that there is only a limited amount of the material and only a limited time to take up the State quota. The farmers were informed particularly that the Government was giving the material free and that the charge for cartridging and distributing—7 cents a pound, and the freight costs approximately 2 cents a pound from Sparta, Wis., where the northern supply is located—made picric acid available for about one-half the price of dynamite.

One poster reads conspicuously: "There is no money in this for anyone—but the farmer."

In its circular the university states that the use of picric acid is recommended for agricultural purposes in this

special instance only because it is a war-salvage material that would otherwise be wasted. It is not intended that picric acid should compete with dynamite which, in some of its lower grades, has certain superior features.

As the material is to be shipped only in carload lots, the university recommended the pooling of orders in each county, or, where necessary to make up a carload, the pooling of one county's orders with those in a neighboring county. The allotments of picric acid for the various States will be held by the Bureau of Public Roads, United States Department of Agriculture, until May 1, 1922, at which time any allotments that have not been taken up will be canceled and the most equitable distribution possible will be made of that remaining.

WARFARE PLANNED TO DRIVE RATS FROM EASTERN STATES

Damage totaling $200,000,000 in stored foodstuffs, grain, field crops, and other injurable materials is done by rats in the United States annually. Only the united efforts of every home owner and tenant can effect the abolition of these rodent pests. The Biological Survey, United States Department of Agriculture, is starting a big campaign against rodents throughout the eastern United States. Much already has been accomplished in the matter of control in the Western and Middle Western States, where effective cooperation was secured. On the other hand, residents of the Eastern and Southern States, as a rule, have been exposed to widespread ravages and attacks from rodents for such long periods that they have become so accustomed to the nuisances as to accept them as a matter of course. Uncle Sam is doing his utmost to awaken these sections to the need for eradicating rats.

To illustrate the enormous damages which rats annually accomplish in grain and corn fields, the experience of the State Penitentiary Farm, covering 2,500 acres, at Baton Rouge, La., is of interest. Last year a 200-acre field of corn was planted on this farm. The rats worked their way through the field, stealing all the seed before the kernels could germinate. The field was planted a second time, and again the rats overran the prospective cornfield, leaving in their wake paths of destruction. Undeterred, the farm manager planted the field to corn a third time, and ultimately secured a poor stand, which resulted in the production of about one-third of a normal corn crop.

This year, just before planting, a drive on the rats was organized, following methods recommended by the Biological Survey. Convict labor was used in distributing poison bait over the entire 2,500-acre tract, and as a consequence the place was practically freed of rats. As a direct result of this rat-eradication drive, the farm this year secured from a single planting an excellent stand of corn that bears indications of an early harvest of a good crop.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended August 31, 1921:

Development of Tubers in the Potato. By Charles F. Clark, Horticulturist, Office of Horticultural and Pomological Investigations. Pp. 27, figs. 10. Contribution from the Bureau of Plant Industry, Aug. 22, 1921. (Department Bulletin 958.) Price, 5 cents.

Describes findings obtained from experiments conducted to determine the factors influencing the number and subsequent development of tubers.

The European Horse-Radish Webworm. By E. H. Chittenden, Entomologist in Charge, Truck-Crop Insect Investigations. Pp. 10, figs. 8. Contribution from the Bureau of Entomology. (Professional Paper.) Aug. 25, 1921. (Department Bulletin 966.) Price, 5 cents.

Prices of Farm Products in the United States. By F. G. Warren. Pp. 72, figs. 13. Contribution from the Bureau of Markets and Crop Estimates. Aug. 26, 1921. (Department Bulletin 999.) Price, 20 cents.

Soil Survey of St. Francois County, Missouri. By H. H. Krusekopf, E. W. Knobel, and C. E. Deardorff, of the University of Missouri. Pp. 32, pls. 2, fig. 1, map. (From F. O. Soils, 1918.) Price, — cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct; not to the Department of Agriculture.

PECAN CONDITIONS VERY GOOD.

Much better than last year, although not up to 1919, is the condition of the pecan crop, based upon the set of the nuts and general condition of the trees as reported by the Bureau of Markets and Crop Estimates, United States Department of Agriculture. Prospects in Georgia, the leading State for cultivated pecans, are reported as very good, and in Louisiana, where both cultivated and wild nuts are extensively grown, as "very satisfactory." The Moore will be the first improved pecan to be harvested, and, because of its earliness, it brings a high price. It should be marketed before the Schley and other mid-season varieties are ready, for, because of its small size, it is difficult to sell after the larger nuts reach the market. The pecan industry has been built upon varieties only one generation away from wild nuts. It is the only strictly American nut that has been developed on a commercial scale, and orchards or groves of improved varieties have been planted extensively.

20 COUNTRIES SHOW WHEAT CROP OF 2,461,430,000 BUSHELS

(*Continued from page 1.*)

a very small area was sown to the various crops, resulting in a failure to produce sufficient food for the country's needs. It is also reported unofficially that a considerable amount of wheat will yet be imported by Russia this year. But up to the present time the amount of wheat, as well as other foodstuffs, which will be imported is conjectural, and the Bureau of Markets and Crop Estimates is unable to make a definite statement concerning it.

In northern Africa, the wheat crop was generally larger than last year. In Algeria, thrashing results show a better yield than was expected earlier in the season. In Tunis, bad weather reduced the yields somewhat from those expected earlier, while in Morocco the crop was generally reported as satisfactory. According to estimates published by the International Institute of Agriculture at Rome, these three countries are expected to produce, for 1921, a yield of 66,138,000 bushels of wheat, compared with 36,743,000 bushels in 1920.

TESTING ASSOCIATION COW IS 86 POUNDS ABOVE AVERAGE

The average dairy cow in this country produces annually about 4,000 pounds of milk and 160 pounds of butter fat. According to 40,000 yearly individual cow records just tabulated by the United States Department of Agriculture, the average cow-testing association cow produces 5,980 pounds of milk and 246 pounds of butter fat a year. The world's records are 37,381.4 pounds of milk and 1,252 pounds of butter fat. The average dairy cow has plenty of room for climbing, and such commendable live-stock improvement campaigns as the "Better Sires—Better Stock" drive will be effective in increasing the efficiency and production of American dairy stock.

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MANY PERILS TO LIVE STOCK GRAZED ON NATIONAL FORESTS

Heavy Losses from Predatory Animals, Poisonous Plants, Disease, and Accidents.

Unless Owners Guard Perseveringly Against Sources of Danger, Herds and Flocks Usually Suffer a Mortality of from 5 to 6 Per Cent Yearly.

The utilization of the range in the national forests of the West for the production of wool, beef, mutton, and pork is steadily increasing from year to year. Ranchers and stockmen are manifesting a growing appreciation of the advantages afforded by Government pasturage. And in the same degree, they are all too frequently neglecting their live stock after it is turned out on the mountain ranges, state officials of the United States Department of Agriculture.

On all open ranges there are many losses from predatory animals, poisonous plants, disease and accidents, and similar dangers. Unless owners of live stock campaign intelligently and perseveringly against such sources of disaster, their herds and flocks usually suffer a mortality of from 5 to 6 per cent yearly. To illustrate, one ranchman grazed 700 head of cattle last summer on a national forest without a herder. As a result he lost a dozen head of steers worth $50 each.

Mortality High Last Year.

Last year in forest district 5, which includes California and western Nevada, the total live-stock mortality in 17 forests amounted to 1,151 cattle, 5 horses, and 5,840 sheep. The total number of permittees who used the Federal grazing lands aggregated 3,329. They grazed 234,415 cattle and horses, 633,500 sheep and goats, and 5,500 hogs on the forest ranges. Two hundred and seventy-five cattle died of disease; 299 cattle and 1,462 sheep were killed by eating poisonous plants; 91 cattle, 5 horses, and 2,745 sheep were killed by predatory animals; and 486 cattle and 1,633 sheep succumbed to accidents and miscellaneous causes of death.

This matter of live-stock losses on the Government ranges has become of such importance that the United States Forest Service made a detailed survey of the specific causes of mortality among live stock in the Stanislaus Forest of California during a recent year. During the period under discussion, a total of 881 head of live stock out of the 20,000 animals pastured in the forest lost their lives. The manner in which these losses were distributed should be of value to stockmen and ranchers who are interested in curtailing these losses, and who are anxious to know what the weak points in their present methods of management are. The losses among cattle were distributed as follows:

Under 1-year old from blackleg, 98; over 1-year old from blackleg, 57; calves, loss of mother from larkspur poisoning, 10; cattle losses from larkspur, 53; other poisons, 21; predatory animals, 20; accident, 33; in calving, 14; lost, strayed, or stolen, 74; from anthrax, 2; from eating giant powder from railroad-construction camp, 5; from neck-and-spine disease, 15; killed by hunters, 2; blind, aged, crippled, and ruptured, 4; losses from contagious abortion, 122; from lack of proper food and starvation, 14; and from unknown causes, 337.

Check Predatory Animals.

The losses from predatory animals are being checked as rapidly as the Federal agencies for this work are able to cope with the situation. Whenever the forest rangers note that the predatory animals are causing heavy damage, professional hunters are sent to destroy them. The losses due to disease and accident and miscellaneous causes could be substantially decreased if more herders were employed by the owners. Under conditions which obtain on the national forest ranges, one or two herders could handle from 500 to 1,000 cattle without particular difficulty. On the same scale that it pays to herd sheep on the Government ranges, it also is profitable to herd cattle and, potentially, permittees probably

(*Continued on page 8.*)

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RICE WILL MEET SHORTAGE CAUSED BY POTATO DECREASE

Good Demand Looked for as a Substitute in View of Prospective Shortage

Expected Crop of 33,500,000 Bushels of Rough Rice is Equal to 931,000,000 Pounds of Cleaned Rice—Large Stocks Left Over From Big Crop of 1920

The prospective shortage of the potato crop makes possible a good demand for the rice crop as a substitute for potatoes. Rice can be made to meet the shortage, suggests the Bureau of Markets and Crop Estimates, United States Department of Agriculture. The prospective crop of 33,500,000 bushels of rough rice is equal to 931,000,000 pounds of cleaned rice, and to this must be added comparatively large stocks derived from the extraordinarily large crop of 1920. Cuba, also, which usually receives large imports of rice from this and other countries, has stocks of this cereal that are greater than the ordinary ones.

Consumption of Foods Affected.

Consumption of foods was affected variously by the requirements of armies and navies during the war and by the course of prices since the war began, and a per capita consumption of such foods in the near future can perhaps be better estimated, if based on the more steady conditions that preceded the war, than on the erratic ones that followed them. At the per capita consumption of 7 pounds of rice in the United States in 1905–1914 for all purposes, before the war, the population this year would require 760,000,000 pounds, or 171,000,000 pounds less than this year's crop alone, to say nothing of unusual stocks. There are, however, ways of disposing of the surplus besides finding export markets or piling up domestic stocks.

When the potato crop is short, rice is an acceptable substitute food, and one that may naturally be drawn upon partly to counterbalance the potato deficiency. The forecast of the potato crop of this

year, made for August 1, is only 316,000,000 bushels, while the consumption, at the per capita rate of 3.8 bushels for 1905–1914, for all purposes, would be 412,500,000 bushels, so that the prospective deficiency, apart from such imports as may be made, is 96,500,000 bushels. The imports of potatoes have never equaled 14,000,000 bushels in one year. Rice may naturally help to fill this void of approximately 100,000,000 bushels of potatoes in the food supply.

Wheat a Substitute.

It has been noticed, also, that wheat is to some extent a substitute for potatoes in food economy, when their price is high. The expected wheat surplus of this country has dwindled as the season has advanced. The official estimate of production was reduced by more than 50,000,000 bushels of this future surplus wheat during July, and, at the per capita consumption of 6.21 bushels for 1905–1914 for all purposes, the remaining crop, as forecast for August 1, provides an export of 83,000,000 bushels under average food conditions. Part of this may be taken as a substitute for potatoes, if price permits. At any rate, the elements of the situation invite a larger rice and wheat consumption than usual during the crop year 1921–22, to be determined by relative prices.

DEPARTMENT MAKES POSSIBLE TABLE GRAPES YEAR 'ROUND

Table grapes for the year around—the ambition of American horticulturists for years—is an accomplished fact with the United States Department of Agriculture this season. The first carloads of Panariti, the so-called Greek currant grape, recently developed in this country by the department, reached New York from California the latter part of July. Last autumn department viticulturists at Washington opened packages of Ohanñez grapes fully three weeks after their arrival from California and found them in perfect condition.

The Panariti grape until recently was known in this country only as a dried currant, of which 30,000,000 pounds were imported annually from Greece. It is brought into perfect fruitage through a secret method carefully guarded by the Greeks and discovered by department workers very recently. The secret method is to girdle the vines while they are in bloom so as to keep the sap in the tops of the vines. The Panariti has unusual merit as a table grape, but, due to unfamiliarity on the part of the native American public, shipments to New York were largely purchased by the Greek population, who bought them eagerly.

FACTORS IN SHIPPING CITRUS FRUITS BY WAY OF PANAMA

Observations Based on Results of Two Test Shipments of Oranges from California.

Shipper Should See to It That Ventilating Facilities Are Properly Installed and Located so That Lading Receives Adequate Supply of Fresh Air.

Based upon observations of its representatives who recently accompanied two test shipments of oranges from the Pacific to the Atlantic coast via the Panama Canal, the Bureau of Markets and Crop Estimates, United States Department of Agriculture, points out the following factors in the handling of citrus fruits shipped by water:

To secure proper space on steamships advance notice should be given the steamship company regarding intended shipments. Arrangements should also be made for securing a sufficient supply of dunnage, which is furnished by the steamship company. Before assigning fruit to any particular boat the shipper should ascertain whether ventilating facilities are properly installed and located so that the lading will receive an adequate supply of fresh air. Delayed sailing dates are apt to throw the whole shipping plan out of schedule, and when it is impracticable for the shipper to rearrange his plans, the fruit must remain in the dock warehouse until the delayed boat has arrived.

Loading Boxes.

When shipped in refrigerator cars to the steamer the boxes may be loaded on their sides to save nailing strips, as the short haul to the dock does not require the same loading as for a transcontinental journey. When shipped by motor truck the load should be covered with tarpaulin to keep off the sun's rays. During bad weather, rail shipment to the dock is preferable.

It is imperative that the shipper have at the dock a capable representative who thoroughly understands loading methods. Experimental trips have shown that the top or upper 'tween decks should be avoided, and that the fruit should be loaded in only cargo holds that are bulkheaded away from the engine room. The best location seems to be in the lower 'tween decks.

As a result of damage to fruit by the prevailing slings in use to swing the boxes over the ship's side and into the holds a new sling that is a modification of the old style "aeroplane sling" was constructed. This is a square platform with a hook at each corner. One of the worst phases of handling fruit by boat has been eliminated by the use of this sling, as the boxes are not damaged in any way.

The ship's holds should be thoroughly clean. On one of the trips a great deal of coal which had been carried as cargo previous to loading the fruit was shaken down from the overhead deck supports and greatly hurt the appearance of the shipment on arrival. In stowing, the boxes should be placed on end as in refrigerator-car loading, and ventilating channels should be left between each row of boxes to assist circulation of air through the load. These channels must be uniform and continuous, as the ventilators on ships in use do not furnish as great a volume of air as do the ventilators on refrigerator cars. Unfortunately, it does not seem possible to protect the loading of a ship against rain, and during the rainy season this may prove a serious drawback. In loading the fruit is also exposed to the sun a longer time than in the case of refrigerator shipments.

Circulation of Air Important.

As with refrigerator cars, the present-day cargo vessel is dependent upon the speed of the vessel and the wind for creating a circulation of air through the lading. There are four ventilating hoods or "cowls" for each hatch, about 36 inches in diameter, and arranged so that they can be turned any direction to scoop up the air and carry it down and distribute it through the cargo. It is the usual practice to turn two of these cowls so that they will be the intakes facing the wind and to turn the other two from the wind thereby serving as exhaust ventilators. The cowls must be turned at each shift of the wind. During squally weather the intake cowls must be turned from the wind to prevent rain driving in on the cargo, and in extremely heavy weather with seas breaking over the deck the cowls must be removed entirely and the ventilator pipes plugged and covered with canvass.

Although these ventilation precautions are necessary, they are, under the best conditions, detrimental to the fruit. In pleasant weather beneficial results are secured by removing the hatch covers, and protecting the fruit from the sun by tarpaulins suspended over the hatch openings. With the hatch covers removed the cowls can be turned to act as intakes and thus force the air out of the open hatch. This doubles the quantity of air passing through the load. The ob-

jections to hatches being opened are pilfering by the crew, and on coal-burning ships the settling of cinders and sparks over the fruit.

With a view to providing a better ventilating system than in present use, arrangements are being made for testing three different installations. One is a complete motor-fan unit with intake and exhaust ducts distributed throughout the cargo space in one hatch so that a complete change of fresh outside air at normal temperatures will be drawn into the hold every few minutes. Another system is a motor-fan unit located in the empty refrigerating room which will blow chilled air out of the room, circulate it through the fruit, and draw it back over the refrigerating coils. The third system is the use of two very efficient exhaust ventilators capable of exhausting air out of the cargo hold automatically at all times regardless of wind direction, weather or sea conditions, and working equally well in heavy rains or breaking seas as in calm weather. A weatherproof intake pipe will also be provided for each exhaust ventilator through which the fresh outside air will be drawn. If deemed advisable, intake pipes can be provided with suitable apparatus for controlling the humidity of the incoming air.

Cooling at Time of Loading.

The temperature of the fruit at the time of loading plays an important part in its behavior in transit. The fruit should be as cool as possible at time of loading, and the best practice is to transport the fruit to the dock at night, giving it the benefit of low temperatures. The tests revealed that fruit stowed in the lower 'tween decks will run at a lower temperature than in the upper 'tween deck. Also loading with other commodities having a high initial heat should be avoided. Care should be taken that the fruit is not loaded into holds together with commodities that are apt to contaminate or destroy its general appearance. These commodities are commercial fertilizers; petroleum and coal products such as oil, creosotes and coal tars; many chemicals, especially those giving off chlorine or ammonia; vegetables like onions, garlic, or potatoes; strong smelling spices, and such dusty articles as sacked cement and flour.

The foregoing sets forth only some of the high-lights in water transportation. Many other minor conditions exist of which the shipper of citrus fruits via the canal should have a thorough understanding, if he would have his products arrive at their destination in first-class condition. The investigations by the Bureau of Markets and Crop Estimates are being continued and the results will be published very shortly. The bureau will be glad, as soon as that publication is ready, to place it in the hands of shippers upon request.

Water Raking Lessens Keeping Quality of Cranberries, Investigation Reveals

Even under the most favorable conditions of picking and handling the keeping quality of water-raked cranberries is somewhat inferior to that of dry-raked berries from the same sections and about equal to hand picked berries, the Bureau of Plant Industry, United States Department of Agriculture, found as a result of investigations carried on through three seasons in Wisconsin. The practice of water raking—that is, of flooding the bog and raking off the berries as they float on or near the surface of the water—has developed to some extent in Wisconsin and has given rise to so much discussion as to its effect on the keeping quality of the fruit that the investigation was conducted, details of which are contained in Department Bulletin No. 960, The Relation of Water Raking to the Keeping Quality of Cranberries, recently issued by the department.

Bulk of Crop Harvested Dry.

The greater part of the cranberry crop of the United States is harvested dry, being picked by hand or gathered by scoops or rakes of various designs. Most growers, indeed, take great care not to allow the berries to be picked when wet with dew. In Wisconsin, however, climatic conditions and the nature of the marshes in many cases has led to water raking as the easiest method of harvesting, a practice in use nowhere else in this country, and one that the department believes would be impracticable and inadvisable elsewhere.

Berries that were permitted to remain wet for some time after water raking were found to show decidedly poorer keeping quality than those quickly dried, and were inferior to those that were dry raked or hand picked. As in the case of cranberries harvested in other ways, ventilation was found to be of great importance in the storage of the water-raked berries. They should be kept under water as short a time as possible, should be well colored when harvested, and should be dried promptly.

Whether berries in Wisconsin shall be water raked, dry raked, or hand picked, it is said, must be decided by each grower and for each marsh separately, after taking into consideration the cost of the various methods, the available labor, the kind and quantity of water available, the seasonal conditions, and especially his experience with the marsh as regards the keeping quality of the fruit produced.

Department Offers Suggestions.

As a result of their observations, the department offers the following suggestions to growers who find it necessary or advisable to follow this practice:

"Small flooding sections are a distinct advantage in water raking, as the berries under such conditions need be submerged for only a short time.

"The cooler the flooding water, the better the chance of successful water raking. Clear spring or brook water is preferable to dark-colored swamp water.

"Intelligent and conscientious assistants to care for the drying of the berries are absolutely necessary if water raking is to be successfully practiced.

"In packing water raked cranberries any lots which have dried slowly because of unfavorable weather or other conditions should be kept separate and marked or sold separate.

"Because of the variation in keeping quality of water raked cranberries due to the conditions under which they are handled, it is doubtful whether water raked berries should ever be mixed with or included with dry raked or hand picked berries."

39 VARIETIES IMMUNE TO TAKE-ALL

Efforts by the United States Department of Agriculture to combat the so-called take-all disease of wheat in Illinois and Indiana have resulted in finding 39 varieties that are either immune or highly resistant to the disease. They are Beloglina, Crimean, Currell, Dietz, Longberry, Early May, Fulcaster, Fultz, Gipsy, Gladden, Gold Coin, Grandprize, Harvest King, Hungarian, Jones Fife, Kanred, Kharkof, Leap, Malakof, Mammoth Red, Michigan Amber, Mediterranean, Minnesota Reliable, Nigger, Pesterboden, Poole, Portage, Pride of Indiana, Red Cross (red chaff), Red Rock, Red Wave, Reliable, Rudy, Stoner (Marvelous), Trumbull, Turkey, and Wheedling.

Weekly News Letter

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DIVISION OF PUBLICATIONS
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FEDERAL QUARANTINE GUARDS HAWAII AGAINST PLANT PESTS

A Federal quarantine to protect Hawaii against the entry of injurious plant pests, especially the sugar-cane borer, the alfalfa weevil, the cotton boll weevil, the papaya fruit fly, and certain insect enemies of the fruit of the avocado, was announced recently by the Federal Horticultural Board, United States Department of Agriculture, to become effective October 1, 1921. As possible carriers of the pests, regulations are provided governing the movement of sugar cane, corn, cotton, alfalfa, and fruits of the avocado and the papaya from the United States to the Territory. These restrictions, however, do not apply to commercial shipments of these plants, such shipments being safeguarded under territorial regulations. As ship's stores or in possession of crews or passengers they will be under restriction, and Government inspectors will see that they are not brought into the Territory through the various ports.

CASSINA, OR YAUPON, PLANT YIELDS TEALIKE BEVERAGE

An investigation is being made by the Bureau of Chemistry, United States Department of Agriculture, into the beverage possibilities of a plant which has long been used in place of tea along the coast of the South Atlantic and Gulf States, as far south as the northern part of Florida. In Virginia and North Carolina this plant is known as "yaupon." It grows also in South Carolina, Georgia, northern Florida, Alabama, Louisiana, Mississippi, and Texas. In South Carolina it is called the "cassina," or "Christmas-berry, tree."

Not only the tender shoots but all the leaves, it has been found, contain caffeine, making it possible to eliminate the laborious hand picking necessary in gathering tea, of which only certain leaves can be used. Wild plants are abundant, and in one place a cassina hedge 2 miles long has been found. During the World War it was suggested as a possible native source in case the imported supply of medicinal caffeine became unavailable. It is known that the Indians in this region used the plant both as a beverage and for ceremonial purposes. The Spaniards learned the use of it from the Indians. At the time of the Civil War it was used again, crudely prepared, to take the place of tea and coffee, which the Southern States could not easily get.

It is thought by the United States Department of Agriculture that by proper methods of curing, similar to the methods used in curing green and black teas, a very excellent beverage might be brewed from it. Further investigations will be made by the department to determine the practical problems incidental to the production of cassina for beverage purposes.

TELEPHONE SUBSCRIBERS GET RADIOPHONE MARKET REPORTS

Something new in the way of telephone service is the receipt of daily market news and quotations by radiophone and their immediate dispatch by wire telephone to the 3,000 subscribers of an Illinois rural telephone company.

In a letter to the Bureau of Markets and Crop Estimates, United States Department of Agriculture, the telephone company says that the bureau's market reports relayed by the St. Louis University by radiophone are heard distinctly, and that it has opened a special radio office to handle the work of receiving and sending the messages to its subscribers. The service has been widely advertised in the local newspapers, and not only the farmers and shipping associations but commercial business men as well are keenly interested in it.

The company's radiophone receiving office is 69 miles from St. Louis. Its 3,000 or more subscribers are located in 19 towns. The plan is that at certain hours each day the subscribers simply "listen in" on the wire as the market reports are read over the telephone. It is also proposed by the company to install a radiophone transmitting set to relay the reports by radiophone to smaller receiving stations in the surrounding territory.

An Illinois bank located 55 miles from St. Louis has also informed the bureau that it is receiving the market and weather news regularly by radiophone. The St. Louis University says that many individuals, banks, and other commercial and agricultural agencies are receiving the radiophone market reports.

PRIEST AIDS CAMPAIGN FOR TUBERCULOSIS ERADICATION

Some of the difficulties that have to be overcome in its tuberculosis-eradication campaign are shown by recent work in Wisconsin. This State has long been active in tuberculosis eradication, but it is still not easy in some counties to make the people appreciate the need of it. In Oneida County, for instance, the county agricultural agent took the matter up with a priest and went with him to the various missions on Sunday. After the priest explained the meaning of the petition to his followers, there was no difficulty at all in getting the necessary signers.

In Ashland County there are a large number of settlers of foreign birth in some districts. As many of these foreign-born settlers do not speak English, it was difficult to explain to them such things as the land-clearing association and the tuberculosis free area test. The agent obtained for each settlement the services of a man who could speak their language, who was known to all of them, and they visited the home of every man who could not speak English. The interpreter explained the duties of the county agent, what the land-clearing association was, and also that a sufficient number of petitioners was necessary to have tuberculin testing done. Before the agent left the men had a clear understanding of the benefits they could expect and how to secure them, and also of the way in which the county agent of the United States Department of Agriculture and the State agricultural college stands ready to assist the farmers.

SHIP POTATOES UNDER FEDERAL GRADING.

Approximately 1,700 cars of potatoes have been contracted for in the State of Washington, to go from the Yakima Valley to Middle Western markets. This stock must meet the requirements of United States grade No. 1. The Washington State Department of Agriculture, which is now cooperating with the United States Department of Agriculture in the development of its shipping point inspection service, will issue certificates on all cars at the point of origin.

COUNTY AGENTS CARRY GOSPEL OF BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

WISCONSIN COUNTY AGENTS CELEBRATE 10 YEARS' WORK

The tenth anniversary of county agent work in Wisconsin was celebrated August 10, 1921, at Rhinelander, Oneida County, which has the honor of being the first county in the Northern and Western States to make a local appropriation for county agent work.

The outstanding feature of the celebration was a unique parade participated in by each of the 54 county agents. The exhibits, which were intended to illustrate the big results of county agent effort in the various counties, were arranged by the agents on handsomely decorated trucks. An agricultural lime manufacturing company gave a car of limestone for the county whose agent made an exhibit best illustrating his extension work. This was won by Oneida. Rhinelander business men showed their interest by closing all banks and other places of business for the day. A picnic dinner was held at noon in a near-by park, followed by a program of speaking, music, and pageantry.

The Hon. A. F. Lever, member of the Federal Farm Loan Board, delivered the principal address. As former Congressman from South Carolina, he was one of the authors of the agricultural extension act, which established county agent work.

The celebration was so successful and so enthusiastically received that it is planned to repeat the parade as a feature of the Wisconsin State Fair.

EVERGREENS PLANTED IN NEW YORK REFORESTATION

Several counties in New York have shown interest in reforestation. In a recent statement the Forest Service of the United States Department of Agriculture called attention to the fact that the maintenance of an adequate supply of coniferous timber is a forestry problem all over the world, because although the area of hardwood forests is over three times that of conifers the coniferous softwoods are used in almost twice the amount of hardwoods for construction purposes. The county agents have been systematically fostering the planting of evergreens.

In Lewis County in connection with the reforestation project 100 schoolchildren helped to plant 3,000 evergreen trees in a single day. The young plants were secured from the State Conservation Commission, Albany, N. Y. Several definite demonstrations of tree planting are under way in Otsego County, where 142,000 Norway spruce have been set out. Scotch pine was used for demonstration in St. Lawrence County, 10,000 trees being planted. In Saratoga County an area has been planted each year on the Ballston City waterworks property. These trees form a substantial addition to the 7,000 acres planted with conifers in the national forests this year by the Government.

LANDLORDS MEET TENANTS TO DISCUSS FAIR LEASES

To promote fair leases between landlords and tenants in Benton County, Iowa, a series of meetings was arranged during August by the county agent of the United States Department of Agriculture and the State agricultural college. The first meeting called was for tenant farmers, and 160 attended. The county agent presided, stating that many questions had been received regarding leases from both tenants and landlords, and that it was desired to learn just what the conditions actually were. The Extension Service was interested in the prosperity of both sides.

Discussion was along constructive lines. The object of the meeting was to get accurate information on the big issues involved in tenancy. There was open discussion on such points as the kind and the length of lease desirable, fertility, the amount of legumes to be raised, liming, the amount of stock to be kept, living conditions on the farm, adequate buildings and fences for care of live stock, and the use of records. A stenographic record was kept throughout the meeting. Five tenant farmers were chosen as representatives on the joint committee.

The next day 150 landlords met with the county agent in a similar way, and practically the same questions were brought up. The fact was developed that 46 per cent of the farmers of Benton County were tenants. Owing to the present economic crisis many tenants and landlords have found themselves in a serious position. Five representatives of the landlords then met with the five selected tenant farmers in a joint committee for informal discussion. Opinions were frankly exchanged, and there has been no bitterness or harshness expressed in any of the subsequent meetings. It is expected that a basis of agreement, satisfactory to both sides, will shortly be arrived at. Very successful meetings of this character have been held in Vermilion and Woodford Counties, Ill.

One point that is already clear is that share leases seem to be favored in Iowa rather than cash rents. The landlord's opportunity for profit was found to be practically as great under the share system as under the cash system, because a tenant can not long pay cash rent that the land does not earn.

BLANKET-MAKING CAMPAIGN PROVES POPULAR IN MARYLAND

The movement among Maryland sheep growers to have their raw wool manufactured directly is still growing in popularity. Some farmers pool their wool and ship it to the blanket factories, while others send it individually to have blankets or robes made for family use. Under the latter arrangement a farmer usually pays $5 for the making and the freight both ways.

In Washington county the county agricultural agent reports to the United States Department of Agriculture that 207 blankets and 55 motor robes were returned from 2,500 pounds of wool pooled in December. About 10 pounds of wool are needed for a blanket. Those received were of full size and of high quality material, and every grower who took advantage of this means of marketing his wool is decidedly pleased. Many of the growers had found a sale for their blankets and robes prior to their return among those who had no wool to ship. The prevalent selling price was $11.25 a blanket, so that after manufacturing charges and freight costs were deducted the growers netted about 55 cents a pound for their wool. At the time wool was not bringing more than 10 cents a pound.

In Worcester County 200 blankets and robes were made. Four shipments will be made to the factory to dispose of the county's wool clip.

Can Grow Yerba Mate in This Country—Important South American Beverage

Maté trees have been successfully grown in the southern part of Florida by the United States Department of Agriculture from seeds imported for experimentation. There is now a small supply of Florida-grown seed available for testing in that section.

"Yerba maté," as it is called in South America, is native to Paraguay and adjacent countries. The leaves were cured and used as a sort of tea by the native Indians before the arrival of the Spanish settlers. Special ceremonial customs grew up around its use, as when the brewed maté was put in a gourd from which each participant drank his share through a "bambilla" or reedlike tube.

Small Shipments to United States.

Maté is the most important beverage in Chile and Argentina, where at least 15,000,000 people drink it. The production of maté consequently has developed into a large commercial industry in those countries. A small amount is now exported to the United States, where it can be purchased in many places from those who specialize in unusual foods. It is believed by the Department of Agriculture that the American public should acquaint itself with this South American tealike beverage, which has many points to recommend it for general use.

Not the least important of these is the fact, now fully demonstrated, that maté can be grown from seeds in this country, contrary to the long-prevalent theory that the seeds of the "Yerba maté" could not be grown until they had passed through the body of a bird. Private individuals in Florida who received plants from the Department of Agriculture to try out have been curing and using the maté leaves from trees in their own gardens and are recommending the beverage to their friends.

Contains Less Tannin Than Tea.

Maté contains the same alkaloidal or stimulating properties as tea, but develops less tannin. The flavor is similar, but, owing to the process of curing, it has a slight suggestion of smokiness, which is enjoyed by those accustomed to it. The importance of maté as a beverage in competition with tea is worthy of consideration, as all the leaves of the tree can be used and as the curing process is far less expensive than the proper manufacture of tea.

The experiments tried by settlers in south Florida, while they demonstrate that the maté tree will grow there, have not gone far enough to indicate that any attempt to grow maté commercially will be successful there. It is, however, an interesting fact that certain of these settlers have dried the leaves in their ovens and brewed a maté which they declare is a very palatable drink.

It is necessary first of all, however, in the introduction of a new beverage for the American palate to learn to like its new flavor and thus create a demand for it before cultivation on a large scale can be attempted. The cultivation of the tree itself may help in the popularization of the drink.

STANDARDS FOR RAISIN BREAD AND BUTTERMILK ANNOUNCED

Tentative definitions for raisin bread, and buttermilk, evaporated and dried, have been added to the food standards already published by the joint committee on definitions and standards, consisting of representatives from the Association of Official Agricultural Chemists, the Association of American Dairy, Food, and Drug Officials, and the United States Department of Agriculture. Definitions and standards for canned tomatoes, tomato products, chili sauce and catsup, citrus fruits, canned corn, and cacao products already have been made and published tentatively, in order to give all interested persons an opportunity to become acquainted with the definitions and to offer any criticisms or suggestions for improvement.

After adoption, these standards will be referred to the Federal and State food officials for their guidance. The consumer is benefited by the acceptance of a standard in food products, and the trade also is helped by the elimination of unfair competition.

DOES IT PAY TO RAISE RUNTS? QUERY PUT TO MANY FARMERS

A questionnaire survey conducted among 1,000 leading farmers and breeders by the United States Department of Agriculture indicates that about 7 per cent of the annual production of farm live stock in the United States consists of runts and undersized specimens of the various breeds and classes. Farmers report that their annual incomes from live stock would be increased an average of 13 per cent if runts could be eliminated. Better methods of feeding and breeding better stock, the use of purebred registered sires, good care and systematic attention, better housing and sanitation, proper care of the dam before the birth of young, practical control of such objectionable parasites as worms and lice, the control of disease, and the culling from the farm of all stunted stock which indicates no possibilities of successful reformation and rehabilitation are the control methods recommended by these experienced farmers. About three-quarters of them say that it does not pay to raise runts, while the balance maintain that the Tom Thumbs of the live-stock world can be raised successfully only when well bred and when plenty of cheap feed is available and dependable markets are readily accessible.

INSPECTED MEAT ADVERTISED BY BUTCHER AS BEST TO BUY

"Government inspection is your protection," announces a butchering company in Boise City, Idaho, recently. "Look for the Government inspection stamp upon every side of beef, pork, or mutton from which your order is cut. Let it be your guide when buying meat. It symbolizes and guarantees purity and cleanliness. It insures you clean meat from healthy animals."

When laws were enacted several years ago providing for inspection of drugs, produce, and foods generally—especially meats—there was considerable resentment for a while among dealers; but that is seldom encountered nowadays. The modern business man not only obeys the Federal laws but advertises the fact to assure his customers that the thing he sells is pure, clean, and out of a sanitary plant.

Each piece of meat permitted to go into interstate commerce is marked "U. S. inspected and passed," and every can of meat, "U. S. inspected and passed by Department of Agriculture," assuring the consumer that the product is from animals inspected by the Government, in a sanitary establishment, and that it is sound, healthful, and otherwise fit for food, and that it did not contain any prohibited dyes, chemicals, or preservatives at the time it left the place of manufacture.

Every packing plant doing an interstate or foreign business in meats must operate under inspection. Inspectors are

placed in it to see that it is kept in a sanitary condition. Every animal brought to it for slaughter is inspected by an inspector of the Bureau of Animal Industry of the United States Department of Agriculture. If any meat or product is found to be unwholesome or otherwise unfit for food it is condemned and can not be used for human food.

All animals are killed under the eyes of the inspectors, and every carcass receives a post-mortem examination to detect any evidence of disease that might have escaped the ante-mortem inspector. Every piece of meat when ready to be shipped is stamped under the supervision of a representative of the Bureau of Animal Industry, and that stamp carries with it to the consumer an assurance of wholesomeness. Every animal brought into the United States and every one shipped is inspected by the bureau.

PICTURES OF LIVE STOCK READY FOR DISTRIBUTION

Requests from all parts of the country for typical pictures of leading varieties of live stock have resulted in the United States Department of Agriculture preparing such a series of illustrations, and they are now available for distribution among agricultural high schools, rural schools, banks, farmers' clubs, and other societies and organizations interested. No special attention has been paid thus far to making the series complete with respect to the various breeds or types of live stock. They are simply illustrations of fine representative types of animals, of which there should be more in all parts of the United States.

This group of live-stock pictures is known as the live-stock improvement series of the better sires, better stock campaign, the purpose of the pictures being to encourage interest in breeding and developing good live stock. The pictures, of which five are now ready, include a photograph of excellent pure-bred Jerseys being judged at a farmers' picnic, an outstanding example of equine perfection concentrated in a finely bred draft sire, a flock of pure-bred Southdown sheep, provident poultry of the type that win in the prize ring and as utility birds, some of the animals in an accredited dairy herd, one of the first officially recognized as free from tuberculosis, and an unusual picture of six juvenile porkers, each of which is a specimen of one of the leading breeds of swine.

The pictures are of uniform size, 11½ by 15 inches, and may be obtained by addressing the United States Department of Agriculture.

Windbreaks Often Increase Crop Yields—Not Beneficial, Though, in All Respects

Whether the total effect of a windbreak is good or bad depends upon whether the benefits derived from its influence are greater or less than the injury resulting from the sapping and shading of the ground near by. Some crops do better than others when shaded. Seeding crops, such as timothy and alfalfa, are least affected. Grains which develop early in the spring, such as oats and wheat, are most affected, and corn takes an intermediate position.

Windbreak Sometimes Injurious.

The old argument that a windbreak uses more ground than it is worth continues to bob up occasionally, supported mostly by farmers who have not investigated carefully. It is admitted, frankly, that the effect of a windbreak is not beneficial in every respect, and that there are ways in which it is quite plainly injurious. Every farmer knows that trees spread their roots extensively to fields seeking moisture; and they take not only the moisture but some of the nitrogen content of the soil also. But this does not dispose of the question of having or not having a windbreak.

To determine the total effect, crop measurements were made by forestry experts in Nebraska, Kansas, Iowa, and Minnesota. Average, rather than exceptional, conditions were used, the object being to discover the effect of those influences which are continuous, and affect every annual crop grown. These measurements convinced officials of the Forest Service of the United States Department of Agriculture that the crop gain in fields of small grain, in the protected zone, is sufficient to offset fully the effects of shading and sapping.

In a wheat field protected by a dense windbreak the gain amounted to about 10 bushels an acre where the protection was most complete, and gradually became less as the distance from the windbreak increased. The total gain was about equal to the amount of grain that could have been grown on the shaded ground near the trees. The season in which the measurements were taken was not one of high winds, nor did it lack moisture. It appeared, therefore, that in a windy year when evaporation was high the total gain for the field would much more than balance the loss.

In another instance, on the south of an ash and honey locust windbreak, the crop benefited very materially from the accumulation of snow in the lee, and the conservation of this moisture. Here cultivation was possible within 4 feet of the trunks of the trees, so that the increased yield of the field, amounting to about 14 bushels an acre at the highest point, was practically clear gain. The total gain for the whole field amounted to the yield of a strip of ground as long as the windbreak, and three times as wide as its height. Or, had the windbreak, which was 20 feet high, occupied a strip of ground 60 feet wide, the gain in the field crop would have paid the rental on all this ground.

The corn crops showed more consistent and marked benefits from protection than any others. In the region concerned the summer winds are almost wholly from the south, so that the only effective rows and belts extended in an east-west direction. The effect on corn was very marked for a short distance on the south side of such windbreaks, and for a much greater distance on the north side. Fields of young corn showed much better growth in the area protected and warmed by the windbreak.

Extent of Tree Belt.

The effect was visible early in the season, which was rather cool. Height measurements on one field showed the plants to be 4½ feet high in the first 18 rows next to the windbreak, while beyond this protected zone the height was only 2½ feet. This luxuriant growth was still in evidence at the end of the season, and not only produced more fodder, but bigger and heavier ears. The field showed a production of 59 bushels to the acre in the protected part, and only 41 bushels in the exposed area. The net gain, including the area shaded by the trees, was equivalent to the yield of a strip twice as wide as the height of the trees, which were 38 feet high. The increased yield paid, then, for a strip 76 feet wide. The windbreak happened to be wider than this, but need not have been to afford the same amount of protection.

With ordinary field crops the farmer may count on a benefit from windbreak protection which will compensate for the loss of the area used by the trees. Under Middle West conditions—Illinois, Iowa, Minnesota, Dakotas, Nebraska, and Kansas—a windbreak whose width does not exceed two or three times its height will more than pay for itself, regardless of the timber it may produce.

MANY PERILS TO LIVE STOCK GRAZED ON NATIONAL FORESTS

(*Continued from page 1.*)

will come to this decision of their own accord.

Poisonous plants—and particularly larkspur—are responsible annually for large losses of live stock throughout the Western States. There is only one effective system of ridding the ranges of larkspur and that is to grub the plants out season after season until finally the range will be free of this objectionable growth.

The experiences of a certain rancher whose range abuts one of the California national forests, and who, under the supervision of the United States Forest Service, has been waging a winning fight against larkspur during the last four years, are illuminative in this regard. After careful trial and study of the control methods and the results, this stockman is enthusiastic about the efficiency of the plan and he urges every other rancher or stockman who owns infested range to give the system of eradication a thorough and impartial trial.

Ideal Pasturage Infested.

In this instance, the larkspur was prevalent in large amounts on a range where the grazing was otherwise exceptionally good. The infested area was on a side hill where seepage from a spring near the top of the hill provided plenty of moisture so that the grass was unusually luxuriant at all times during the grazing period. The rancher had to have a herder with the cattle constantly in order to keep them off the larkspur-infested area. Not only did he lose the use of excellent range, but he also was under extra expense to protect his cattle from the poisonous plants. During the 1913 grazing season he lost 10 steers which, despite the efforts of the herder, trespassed on the larkspur area and succumbed to the poisoning which resulted. The following season, under similar conditions, 24 head of valuable range cattle were poisoned. The next year only 5 steers died from larkspur poisoning, while the following year, the mortality aggregated 18 head. In 1917 the larkspur-eradication campaign was instituted, and as a consequence of the work of that season the cattle losses were curtailed to only 5 animals. The next year the work was continued and not a single case of steer mortality from larkspur poisoning occurred. In 1919 only two steers died, while last year the mortality also was limited to two animals. Recently, the larkspur area of the range has been grazed by a band of 2,000 sheep.

The first season about 100 acres of range were grubbed, the poisonous plants being eradicated with larkspur picks and scattered in exposed places to dry in the sun. One man could dig 1.71 acres a day. The total cost of grubbing the 100 acres the first year amounted to $450.30, an average of $4.50 an acre. The losses of cattle were reduced from 18 head the year before the grubbing was begun to 5 head the following season. The saving of 13 head of cattle was directly due to the larkspur-eradication work. Estimating these steers worth $50 apiece, a saving of $650 resulted which paid all the expenses of the grubbing and left a balance of $199.70 to the credit of the work. The following season the range carried 50 more head of cattle as a result of the decrease in the amount and severity of the larkspur infection.

In passing, it is worthy of mention that the larkspur picks are made from ordinary surface picks by drawing out one point to a chisel form about 2 inches wide, while the other point is sharpened in a diamond shape. Generally, pruning shears and small hand axes are used in cutting out the brush and trees which obstruct the access of the workmen to the larkspur. Ordinarily, an average workman can grub out from 70 to 80 larkspur plants an hour. The last two seasons the grubbing work has been continued, the chief attention being devoted to new areas, as the original 100 acres are now practically free of any larkspur.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended September 7, 1921:

Manufacture of Cows'-Milk Roquefort Cheese.—By K. J. Matheson, Dairy Manufacturing Specialist, Dairy Division. Pp. 28, figs. 11. Contribution from the Bureau of Animal Industry. Aug. 29, 1921. (Department Bulletin 970.) Price, 5 cents.

The "Alkali Disease" of Live Stock in the Pecos Valley.—By C. Dwight Marsh, Physiologist in Charge, and Glenwood C. Roe, Assistant in Poisonous Plant Investigations. Pp. 8, figs. 4. Contribution from the Bureau of Animal Industry. August, 1921. (Department Circular 180.) Price, 5 cents. Describes a disease locally termed "milk sickness," which affects horses, cattle, and sheep in the Pecos Valley of New Mexico and Texas.

Journal of Agricultural Research.—(For sale only.) Vol. 21, No. 10, Aug. 15, 1921. Contents: A Fungus Disease Suppressing Expression of Awns in a Wheat-Spelt Hybrid. (Ohio-3.) By Lloyd Thatcher. Effect of Ammonium Sulphate upon Plants in Nutrient Solutions Supplied with Ferric Phosphate and Furrous Sulphate as Sources of Iron. (N. J.-8.) By Linus H. Jones and John W. Shive. Dispersion of Flies by Flight. (K-100). By F. C. Bishopp and E. W. Laake, Bacteriological and Chemical Studies of Different Kinds of Silage. (Pa.-12.) By Charles A. Huuter, Sandy Crystals in Ice Cream: Their Separation and Identification. (A-61.) By Harper F. Zoller and Owen E. Williams. Pp. 699-795, Pls. 4, figs. 17. Price, 15 cents.

Monthly Weather Review.—Vol. 49, No. 6, June, 1921. Pp. 327-378, figs. 19. Charts 11. Price, 15 cents a copy, $1.50 a year. Payable to the Superintendent of Documents.

Special articles: Kona Storms. By L. H. Daiugerfield. General Survey of the meteorological problems of the Pan-Pacific countries. By L. H. Daingerfield. Meteorological centers of action in the North Pacific Ocean. By E. A. Beals. Droughts with cirrus clouds moving from the north. By D. F. Manning with discussion by A. J. Henry. Hailstorm at Wausau, Wis., May 22, 1921. By E. F. Simes. Effects of change of position of instrument shelter upon minimum temperature records at Escondido, Calif. By H. F. Alciatore.—Altitudes of the bases of lower clouds as determined from kite and balloon observations. By O. L. Lewis. The Argonne Battle Cloud. By B. M. Varney. On the frequency of fogs in the eastern Sahara. By J. Tilho. On the differences between summer daytime and nighttime precipitation in the United States. By W. J. Humphreys.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

GOOD BUSINESS TRAINING AFFORDED BY CLUB WORK

Ruth Blanton is a Florida girl who has completed her fourth year of successful club work and is now on her fifth. She has done good work in canning, sewing, and poultry clubs, and is justly entitled to membership in the All Star Club. The State home-demonstration agent recently received the following report from Ruth, which shows that good business training is undoubtedly offered by club work:

I am sending you my report, as requested. It is for this year's work to date (July 18, 1921):

Number of hens on hand Jan. 1	12
Number of eggs set	300
Number of good eggs on seventh day	250
Number of chicks hatched	235
Number of chicks raised	230
Sold 107⅔ dozen eggs	$56.44
Sold 121 chicks	86.10
Value received from 12 hens	142.54
Amount spent	88.00
Net cash to date	54.54
Number of hens kept for eggs	12
Number of young pullets	75
Number of roosters on hand	45
Number of chickens on yard now	132
Present value of flock, at $2	$264.00

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ORGANIZATION BEING FORMED TO ADMINISTER PACKER LAW

First Step Is to Collect Information for Use in Building a Permanent Organization.

New and Separate Unit Will Be Created to Administer the Act—Seek Men Who Have Practical Knowledge of the Industry and of the Law.

Designation of Chester Morrill, assistant chief of the Bureau of Markets and Crop Estimates, as Assistant to the Secretary of Agriculture, for the purpose of constructing an organization to administer the packers' and stockyards act, is announced.

Mr. Morrill, who has entered upon his duties, is engaged in the preliminary task of collecting from various Government departments and agencies having to do in the past with the packing industry information which will be available for use in building a permanent organization, under the direction of the Secretary of Agriculture, to administer the act.

Able Assistance Obtained.

In this work Mr. Morrill is receiving the assistance of Bayard T. Hainer, of Oklahoma City, former judge of the United States District Court in Oklahoma, who is looking into legal phases of the proposed organization's activities.

Administration of the act will be undertaken by a new and separate unit of the department. In organizing it especial care is being exercised to obtain for the personnel men whose knowledge of the industry and the law best fits them for that service. It is Secretary Wallace's desire that these men shall be familiar with problems and affairs of the packing and live-stock industries and qualified through training and experience to deal with those problems intelligently and fairly. In addition a careful study is being made of conditions as they have existed and now exist to determine equitable and fair methods of procedure to all parties involved.

The study of the industry is a task of large proportions, involving the digest of a vast volume of information already in possession of the Federal Trade Commission, the Department of Justice, the Interstate Commerce Commission, and other Government agencies. Every detail is under careful consideration, and no attempt will be made to erect a hard and fast organization until a thorough grasp of all the facts has been obtained. The work at the present time, therefore, is largely preliminary.

Formal supervision of the industry awaits the fulfillment of certain preliminary legal requirements. Already, however, the department has been informed that there will be placed before it at an early date complaints as to the commission rates—long a bone of contention—charged at some markets.

HOW FEDERAL ROAD AID STANDS AT THE END OF FIVE YEARS

On June 30, 1921, the close of the fifth fiscal year since the passage of the Federal aid road act, which is administered by the Bureau of Public Roads, United States Department of Agriculture, the States and Federal Government had completed 7,469 miles of road, and 17,977 miles were under construction. Including the work completed on projects still under construction, the States have completed work which entitles them to draw on the Federal Treasury for $118,915,515. There is also a balance allotted but not yet earned on projects now under construction amounting to $66,375,636. Of the two appropriations which have been made for Federal aid there is now only $18,793,544 remaining unobligated. Twelve of the States have obligated their entire allotment and several others have only a small amount to their credit.

During the last fiscal year the total of completed projects jumped from 1,677 to 7,469 miles, and the projects under construction increased from 14,940 to 17,977 miles. The money earned by completion of work has grown from $40,097,881 a year ago to $118,915,515 at the end of this fiscal year. The amount earned during the year was $78,817,634, or nearly

Continued on page 8.

IMPORTED PEANUTS LARGE FACTOR IN DOMESTIC MARKET

Orient Dominant as Chief Source of Supply, and Orientals Replace Virginias in the West.

In a Single Year Imports Amount to One-fourth of Domestic Production—Great Quantities of Peanut Oil Also Imported—Emergency Tariff Increases Duties.

The average person, accustomed to buying his small bag of peanuts at the whistling peanut roasting machine in front of a fruit store, thinks of peanuts, if he thinks of the matter at all, as coming from Virginia. He would be surprised to learn that the American peanut market has been materially influenced for many years by the importation of foreign-grown nuts, says the Bureau of Markets and Crop Estimates, United States Department of Agriculture. Even as far back as the fiscal year 1910 a total of 29,276,235 pounds were brought into the United States, chiefly from Spain, France, and Japan. Receipts reached their highest point in the year ending June 30, 1920, when 132,412,423 pounds of peanuts were imported by the United States, most of which were grown in China. Of this amount 120,344,425 pounds were shelled and 12,067,998 pounds unshelled.

Most Imported Nuts Are Shelled.

Shelled peanuts have constituted the greater part of the imports during recent years. A considerable portion of these oriental peanuts are of the same general type as those grown in the peanut belt around Suffolk and Norfolk. The Department of Agriculture, in figuring domestic peanut production, considers that a bushel of unshelled Virginia peanuts weighing 22 pounds will shell out 14⅔ pounds, or 66⅔ per cent of the unshelled weight. Using this basis of comparison and converting shelled figures to unshelled equivalents, our imports during the fiscal year 1919–20 totaled 192,584,636 pounds, or nearly 9,000,000 bushels, as compared with a domestic production

during the 1920 season of less than 36,000,000 bushels. In addition to the imports of peanuts during the fiscal year ending June 30, 1920, 170,160,367 pounds of peanut oil was imported, which called for the crushing of an even larger volume of peanuts abroad than were actually shipped here. For the fiscal year 1920–21 imports of peanuts totaled 47,989,230 pounds and peanut oil 18,676,181 pounds. The large importation of peanut oil during 1919–20, together with the low prices at which it was offered, was a material factor in curtailing the peanut-oil production in the United States. The past effect of foreign peanuts on the domestic peanut industry is therefore seen to be of distinct importance.

India and Africa, especially Senegal and Gambia, in the past have been the world's heaviest peanut-producing countries, although few nuts from these sources have been marketed in the United States, except when transshipped through ports of France, England, and other European countries. Spain was formerly one of the most important sources of our foreign supply. Imports from that country, however, ceased entirely during the war.

China Leading Original Source of Supply.

For a number of years China has produced the bulk of the peanuts imported into the United States. Shantung is the leading peanut-producing region in China, as its soil is particularly adapted to the growing of peanuts. The nut grown in that Province is said to be larger than that grown in any other part of China and contains more oil. The Provinces of Honan and Chihli rank next to Shantung in the production of peanuts. Peanut "farms" in Shantung are small plats of ground, often not over 2 acres in area. Yet from the produce of small plats like this a Chinese farmer secures a living not only for himself and family, but occasionally gives his sons a college education. This is all the more remarkable in that most Chinese farmers use only primitive methods of cultivation.

The peanut business in Shantung has largely been taken over by the Japanese as the successors of the Germans. Japanese traders at Tsingtau annually export large quantities of peanuts and peanut oil to the United States by way of Kobe and other Japanese ports. Kobe has consequently come to be considered one of the leading peanut and peanut-oil markets of the Far East.

Japanese Shipments Originate in China.

Japan exports some peanuts, but the greater portion of the nuts tabulated by the United States customs officials as coming from Japan are actually produced in China. American consular officials in China have reported that trans-Pacific freight rates in the past have been such that nuts could be shipped from Tsingtau to Kobe, Japan, or to Darien, Manchuria, and thence to the United States at lower rates than by shipping directly from Tsingtau.

Considerable quantities of peanuts are also imported from Hongkong, but these, too, are mostly grown in China. During the fiscal year ending June 30, 1920, China, Japan, and Hongkong shipped 120,042,879 pounds of our total import of 132,412,423 pounds. One of the significant features of the peanut trade during that year was the large importation from the Dutch East Indies, principally Java, whence 5,824,644 pounds were received. Java nuts are said to be heavier and more oily than the Chinese product.

Practically all of the peanuts imported by the United States from Asiatic sources are of the Virginia type, such as are used in this country for roasting and for "jumbo shelled" nuts.

Found in Leading Markets.

Shelled oriental peanuts are to be found in most of the leading consuming markets of the country, and are sold for the same purposes as Virginias—to be used in the manufacture of peanut candy, peanut butter, salted nuts, peanut cookies, and the like. The output of peanut butter and salted peanut industries on the Pacific coast is said to have been seriously handicapped by the fact that oriental goods of poor quality were often used. A mixture of Spanish type peanuts is also sometimes resorted to, as this is considered desirable to give the butter the proper consistency. Many Pacific coast manufacturers are said to make peanut butter from oriental goods alone. West of the Mississippi River Asiatic peanuts have almost entirely displaced the domestic nuts for roasting.

Until the emergency tariff bill was enacted, imported shelled peanuts were taxed only ¾ cent a pound, and unshelled nuts ⅜ cent a pound. The present act, effective until November 27, prescribes a duty of 3 cents a pound on the importation of all foreign peanuts. The imports of peanuts have already shown a decline since the imposition of this duty, and its effect on receipts during the remaining period of its enforcement will be studied with much interest.

The exports of peanuts from the United States have recently been only a fraction of the stock imported. Canada has received the great bulk of the peanuts going out of the country, both Virginia and Spanish varieties being shipped in volume to the larger eastern Canadian cities. Smaller quantities have been exported to Great Britain and the Latin-American countries. The exports of peanuts during the fiscal year ending June 30, 1921, totaled 13,149,417 pounds, of which Canada took 10,555,932 pounds.

The accompanying table indicates the trend of the import and export trade of the United States in peanuts beginning July 1, 1911, and ending June 30, 1921, as reported by the Department of Commerce.

Imports and exports of peanuts during fiscal years 1911–12 to 1920–21.

Year.	Imports.			Exports
	Unshelled.	Shelled.	Total.	
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
1911–12...	12,930,563	2,627,475	15,558,038	5,920,711
1912–13...	12,281,580	6,801,415	19,082,995	7,301,381
1913–14...	17,472,631	27,077,158	44,549,789	8,054,817
1914–15...	14,540,982	9,643,691	24,184,673	5,875,076
1915–16...	9,020,848	19,392,832	28,413,680	8,669,430
1916–17...	7,806,012	27,180,748	34,986,760	22,413,297
1917–18...	3,150,747	73,362,215	76,512,962	12,488,209
1918–19...	1,444,221	19,462,080	20,905,301	13,596,660
1919–20...	12,067,998	120,344,425	132,412,423	14,137,956
1920–21...	5,361,196	42,628,034	47,989,230	13,149,417

GRADING TO HELP NATURE CLEAR THE ROADS OF SNOW

In carrying out its Federal-aid road projects in flat and gently rolling country Wyoming uses a unique plan of grading, so that the wind will keep the roadbed practically clear of snow. The reviewers of Federal-aid projects at the Bureau of Public Roads of the United States Department of Agriculture discovered that in many Wyoming projects the grade line was laid at all points above the natural surface of the ground. Fills were planned even where the ground profile showed a natural knoll.

The explanation was that the grades were kept high in order to utilize the winter winds for snow removal. For six or seven months each year there is likely to be snow, which is generally accompanied by wind. It is well known that any part of a roadway that is below the surface of the surrounding ground will drift full of snow to a depth equal to the height of any near-by object above grade. In a State like Wyoming, where the snow remains on the ground for such long periods and where distances are great, the expense for snow removal would be heavy, out of all proportion to the light traffic.

The Wyoming plan is to build the grade at an elevation slightly above the sagebrush and weeds, and above the normal surface of the snow as it would fall on the adjacent land without wind. In many cases it may be necessary to build a fill even on the top of knolls and high points. The method involves greater grading costs, but there is much to recommend it.

OPERATE HOME-HEATING PLANT TO SECURE BEST RESULTS

Methods of Saving Coal and Providing Healthful Conditions Outlined in New Farmers' Bulletin.

Satisfactory Heating of Homes Obtained Through Proper Equipment Installed Correctly—Size and Place of Chimney Flue Important—Weather Strips Keep Out Cold Air.

The average house owner burns too much coal, principally because he does not know how to regulate his heater, say engineers of the United States Department of Agriculture in Farmers' Bulletin 1194, "Operating a Home-Heating Plant," published by the department. Many rural homes are now provided with furnaces, and the publication was prepared as a guide to their efficient operation, particularly in getting the most heat out of the fuel used and in making the home as healthful as possible.

The satisfactory and efficient heating of homes, according to the bulletin, requires that the chimney flue be of proper size and in the proper place, that the proper heating equipment be installed correctly, that the plant be understood thoroughly and operated so that it gives the most heat from the fuel consumed, that the house be constructed so that the heat is held in, that the air be kept moist, and that enough fresh air be admitted either continuously or from time to time to avoid the discomfort or unhealthful conditions due to accumulation of carbonic-acid gas. In selecting fuel, the bulletin suggests that different kinds and sizes of coal should be tried out.

Should Be Properly Installed.

The best and highest-priced heater improperly installed may give less satisfaction than the poorest and cheapest put in correctly, says the bulletin. For this reason a man known to understand his business should install the plant. In selecting the furnace, consult owners of homes who have had experience in operating furnaces of different types.

Practically all heating plants have four dampers. A draft damper in the door of the ash pit is opened to admit air through the fire, which causes it to burn rapidly. A check damper located in the smoke pipe is opened to admit cold air into the flue, thus interfering with the draft and retarding the burning of fuel in the heater. The damper located in the feed door is used for the same purpose. Through it cold air is admitted directly over the fire, and if opened wide it acts as a check. When regulated properly it admits just sufficient air to supplement that admitted through the draft damper and causes more perfect combustion of the fuel. The smoke-pipe damper is located between the furnace and the check draft and can be used to control the draft above the fuel in windy weather or at night.

Ashes should not be permitted to accumulate in the ash pit, as this retards the draft and the heat causes the grate bars to become warped and bent. As a rule it is not necessary to shake down the ashes more than once or twice a day, except in very cold weather, and shaking should be stopped as soon as live sparks begin to fall into the ash pit. In mild weather coal can be saved by permitting an accumulation of ashes in the grate.

Sealing Cracks Saves Heat.

It is economy to seal the cracks about doors and windows with weather strips, and where the weather is unusually cold, storm sash is recommended. With a wind velocity of 15 miles an hour a crack of three-thirty-seconds of an inch, which is much less than the average for doors and windows, permits the passage of about 1½ cubic feet of air a minute for every linear foot. An ordinary double-sash window (36 inches wide and 72 inches high) would thus admit 30 cubic feet of air a minute. In a room 10 feet wide by 20 feet long, having two windows of this kind, there would be required approximately 80 per cent more heat units to heat it properly than if the entrance of the air was controlled and a complete change allowed once every hour.

In addition to maintaining a proper temperature, the moisture present in the air is a great factor in heating homes. The water pan in the furnace should always be kept filled, and other means provided for the evaporation of water in the living room. Not only are rooms in which the air has a high percentage of moisture more economically heated, but living conditions are more healthful.

Copies of the bulletin may be had upon request of the Division of Publications, United States Department of Agriculture at Washington, D. C.

LOCAL SAND CAN BE TREATED FOR ROAD CONSTRUCTION

A new method of treating a local sand to make it conform to the specifications for a concrete road has been adopted by the engineers of the bureau of public roads in charge of California Federal-aid project No. 41. Near the south end of the project no local sand could be found which would conform to the requirements of the specifications approved by the Bureau of Roads of the United States Department of Agriculture. These prescribed that the sand should contain no more than 5 per cent of material which would pass a 100-mesh sieve. The local sand analyzed about 15 to 20 per cent, which was entirely too high to permit its use.

Instead of falling back upon the importation of suitable sand from another locality the engineers devised a plant for blowing the fine particles from the sand. This district is extremely arid, and in summer the temperature sometimes mounts to 120° in the shade, so that the sand is very dry when worked. The device used consists of an ordinary conveyor which lifts the sand to a revolving screen. Material which will pass a one-fourth-inch mesh is discharged into a hopper under the screen and then through a narrow opening into a storage bin below. In falling from the hopper to the bin the sheet of sand passes directly in front of a nozzle which directs against it a current of air from a centrifugal air blower. By means of a pressure regulator at the blower the velocity of the air at the nozzle can be so controlled as to blow from the falling sand any desired percentage of the finer material.

The blower is operated by a belt from the same gas engine which operates the conveyor and revolving screen. The whole device is compact and inexpensive. The result is a satisfactory sand obtained at less cost than by any other method. The success of the plan depends, of course, on the dryness of the sand. If it were necessary to dry it the increased cost of treatment might make the importation of suitable material preferable.

MANY HERDS SEEK ENROLLMENT AS FREE FROM TUBERCULOSIS

Latest report of the tuberculosis-eradication work by the United States Department of Agriculture shows that a total of 204,892 head of cattle in 8,839 herds have been accredited by the Government as free of tuberculosis infection, while 702,590 additional cattle in 56,113 herds have already been once tested and found free of the disease. On August 1, 1921, a total of 1,294,159 cattle in 79,341 herds were under supervision in the tuberculosis-eradication campaign. Furthermore, there were 218,531 cattle in 14,494 herds on the waiting list for testing. There is a constant increase in the number of animals and herds tested and accredited and in the demands on the part of herd owners who desire to place their cattle under Government supervision.

Weekly News Letter

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John L. Cobbs, Jr., Chief

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The News Letter is a news service, and editors are invited to reprint from it with or without credit.

TELEGRAPH WIRES BIND MARKET NEWS AGENCIES

Four State marketing bureaus are now connected with the Washington office of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, by telegraph wire. "Drops" from the Federal leased-wire system extend into the State bureau offices at Trenton, N. J.; Lancaster and Harrisburg, Pa.; Madison, Wis.; and Lincoln, Nebr., and at each point the State officials are able to "listen in" on the market news messages being sent to and from the various branch offices of the Federal bureau. Such market information as is of interest to the farmers, dealers, and consumers of the four States is copied and given intensive distribution by the State officials.

In most cases distribution of the market news is done by means of special news releases to the daily and weekly newspapers and the farm journal press. In one instance the market information is distributed by means of mimeographed reports mailed direct to farmers and other agricultural interests. In Pennsylvania the work of distribution is facilitated by eight reporters located in important market centers, who supplement the national news with local information regarding supply, demand, and prices.

The marked increased appreciation of the value of agricultural market news and its wider distribution through daily and weekly reports is in a large measure due to the progressive program adopted by the National Association of State Marketing Officials, which believes that one of the prerequisites of improvement in the Nation's machinery for marketing agricultural products is a national and local market news service that will give producers accurate reports as speedily as possible after the marketing transactions take place.

LOOKING FOR NEW SOURCES OF EUROPEAN CROP INFORMATION

Dr. George F. Warren, consulting economist in the United States Department of Agriculture, and William F. Callander, statistician and assistant to the Chief of the Bureau of Markets and Crop Estimates, have been selected by the Secretary of Agriculture to visit various countries of Europe immediately to develop methods and sources for securing crop and market information in those countries and to arrange for sending it more promptly to the United States. Dr. Warren is on leave of absence from Cornell University, where he is in charge of the Department of Agricultural Economics, and will devote the time to the European mission for the Department of Agriculture.

For many years the department has published foreign crop and market statistics whenever available, but difficulty is often experienced in obtaining information in time to make the best use of it. It is planned to publish world crop forecasts, and it is expected that Dr. Warren and Mr. Callander will make arrangements for securing data which will make that possible.

For a long time there has been a demand for prompt and complete information concerning not only foreign crop conditions but also surpluses and deficits, probable changes in production and demand, and other economic factors. The American farmer requires this information as a basis for adjusting his production to market conditions and in order to act wisely in selling his products.

NEW OUTBREAKS POTATO WART LEAD TO RESTRICTIVE MEASURES

New outbreaks of potato wart in certain sections of Allegany County, Md., has led the Federal Horticultural Board of the United States Department of Agriculture to secure the cooperation of State authorities to strengthen the quarantine and restrictive measures already in force against the disease. While the disease has been discovered only in comparatively small patches in mining regions of Pennsylvania, Maryland, and West Virginia, the damage done, running up to 100 per cent of the crop in the case of some susceptible varieties, has shown the need of more stringent steps to keep it from spreading to other districts. The new outbreaks are close to potato-growing regions.

The Maryland authorities have agreed to quarantine infected fields and to establish safety zones adjacent to them, in which only immune varieties of potatoes will be allowed to be grown. A number of excellent immune varieties have been discovered through tests. A representative of the Federal Horticultural Board will help the State authorities to work out the safety zones.

There has been practically no spread of the disease in the other two States. The disease seems to be under control so far as general areas are concerned. A recent survey indicated that if any spread had occurred it was merely from field to field and not serious enough to cause concern.

PUNGENT HORSE-RADISH FAILS TO REPEL INSECT ENEMIES

Even the pungent and tear-starting qualities of horse-radish are not sufficient to discourage insect enemies. In addition to two other specific and two incidental pests preying upon this plant, entomologists of the United States Department of Agriculture report a third specific enemy, known as the European horse-radish webworm and described in a bulletin of that title, Department Bulletin No. 966, just issued.

The caterpillar, which does the most destruction, is of medium size and is also known as the purple-backed webworm, as well as by its regular name. While favoring horse-radish, it is also known to attack turnip and cabbage, and after feeding on the lower surface of the leaves sometimes webs them together near the ground. When abundant, it attacks the stalks even down to the roots. It was first discovered in injurious numbers in Virginia, near the District of Columbia, in 1919, and occasional attacks have been noted in Massachusetts, New York, New Jersey, and Wisconsin. The moth of the species is rather a bright ocher yellow, with a wing spread of about 1 inch, peculiarly spotted. The eggs are deposited in compact masses containing from half a dozen to a score. They are a little brighter green than the leaf, and each egg is surrounded by an irregular ring of yellow spots. At least two generations a year are produced in Virginia.

The webworm may be controlled by arsenicals and by hand-picking on horse-radish, and more readily on other crops by fall and spring plowing and frequent cultivation.

Courts Will Decide If Product Made From Evaporated Apples Is Cider Vinegar

The controverted question as to the labeling of vinegar made from evaporated apples under the Federal Food and Drugs Act will be litigated in the Federal courts, according to a statement issued recently by the Secretary of Agriculture. Pending the decision of the courts it is announced that vinegar made from evaporated apples and labeled as "apple vinegar" will not be interfered with.

This controversy over the legal labeling of vinegar has been going on for some time. Back in February, 1912, the Department of Agriculture in Food Inspection Decision 140 defined vinegar, cider vinegar, and apple vinegar as the product made from the alcoholic and subsequent acetous fermentations of the expressed juice of apples. This decision further provided that "the product made from dried apple skins, cores, and chops by the process of soaking with subsequent alcoholic and acetous fermentations of the solution thus obtained is not entitled to be called vinegar without further designation, but must be plainly marked to show the material from which it is produced."

May Label Product "Apple Vinegar."

Upon finding in the market vinegar made from evaporated apples but labeled as cider vinegar the department made a number of seizures. Some of the manufacturers elected to contest these cases in court. From one cause or another the termination of such litigation has been delayed. In the effort to reach a satisfactory settlement of this disputed question the Secretary of Agriculture, under date of July 14, 1921, called a public hearing and invited representatives of the industry, food-law officials, and all interested parties to submit their views. It was tentatively suggested that the term "apple vinegar" might be used to indicate a product made from dried apple stock, but that such product should not be labeled "cider vinegar" or "apple cider vinegar."

The hearing was attended by a number of vinegar manufacturers. Letters were received from many State officials charged with the enforcement of food laws. The oral and written statements indicated that the tentative suggestion that the term "apple vinegar" be permitted for vinegar made from evaporated apples is not satisfactory either to some of the manufacturers who make such vinegar or to those who make vinegar from the expressed juice of the apple. Most of the State food officials also objected to the use of this term for vinegar made from evaporated apple stock.

The manufacturers of vinegar from such material claim that as their vinegar is made wholly from apples and apple products they have a right to use the descriptive terms "cider vinegar" and "apple cider vinegar." Those who manufacture from the fresh apple juice insist that Food Inspection Decision 140 be strictly adhered to. It became evident that whatever decision might be reached the case would have to be passed upon ultimately by the courts. The Secretary of Agriculture has therefore determined to have the matter promptly settled by the courts. Pending the decision of the court no seizures will be made of vinegar made from evaporated apple stock and labeled "apple vinegar," as tentatively suggested on July 14, 1921.

DEPARTMENT TEACHES PUPILS TO PREPARE SCHOOL LUNCHES

The hot lunch, served at school, particularly the cup of hot cocoa, milk, or soup, has long been a project fostered by home-demonstration agents of the United States Department of Agriculture and the State agricultural colleges. A more delicate matter is the improvement of the lunches which the children bring to school. The principal of the Anderson grammar school, in Shasta County, Calif., observed that many of her children brought their lunches wrapped in newspaper. She asked the home-demonstration agent to show the pupils how to put up a basket lunch, and incidentally, what to put in it.

The school was divided into two groups, and a demonstration given before each group in one of the classrooms. Different styles of lunch boxes were exhibited. During the demonstration a box was packed with sandwiches wrapped in waxed paper. A discussion of foods suitable for the school lunch proved particularly interesting to the older children, more than half of whom prepared their own lunches before leaving home.

Since the demonstration a large number of children are bringing milk to school in bottles and there is a marked improvement in the appearance and the contents of the lunch boxes. When airtight tin boxes are used, such as the tobacco can, which is a popular type of box in this particular school, the children are taught to clean them thoroughly, enamel them white, possibly decorating them in their art lessons, and to punch air holes in the bottoms of the boxes.

COST OF HANDLING GRAIN IN SACKS AND IN BULK

Investigations as to the comparative cost of unloading bulk and sacked grain from railroad cars at a modern terminal elevator located at Portland, Oreg., conducted by the Grain Division of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, show that it costs over four times as much to unload a car of sacked grain as it does to unload a car of bulk grain. The costs are figured on the basis of labor charges at 80 cents per hour and power charges at 1½ cents per horsepower per hour. Power was used in spotting the cars at the elevator and in working the power shovels when unloading bulk grain.

The distribution of the average time required to unload the cars and the average costs is shown in the following table:

	Bulk.[1]		Sack.[2]	
	Minutes.	Cost.	Minutes.	Cost.
Spotting car	3.4	$0.153	1.3	$0.078
Breaking out	11.0	.245	2.5	.19
Handling grain	21.0	.602	115.4	4.65
Cleaning out car	10.2	.452	26.0	1.04
Total	45.6	1.45	146.4	5.87

[1] Average tonnage per car, 40.8.
[2] Average tonnage per car, 40.1.
These figures include the time required and the cost of unloading the cars only and do not include the time or cost required for elevating or weighing the grain in the elevator.

8,000 BUSHELS OF CORN CLEAR GAIN.

Records of one 800-acre farm in Ohio show an annual increase of 8,000 bushels of corn through the adoption of new strains of corn and improved methods developed and recommended by the United States Department of Agriculture. The farmer has been following the advice of the department for 20 years, and has kept careful records of his yield. For the last 10 years the increase averages more than 10 bushels an acre over previous years. Beyond the extra cost of harvesting, the labor and expense is no greater than previously, so the 8,000 bushels is regarded as clear gain.

Rayless Goldenrod May Be the Cause of "Alkali Disease" Which Kills Many Animals

Though the cause of alkali disease which has been responsible for the death of many animals in the Southwest is not definitely known, it has been estabished that the ailment is more prevalent in sections where the rayless goldenrod grows abundantly. Experimental work conducted by the United States Department of Agriculture and reported in Department Circular 180 has shown that this plant is poisonous to cattle, horses, and sheep, and produces a definite line of symptoms said to correspond to those present in alkali disease, or in milk sickness, as it is also called. It has been shown also that the symptoms follow the eating of the plant alone without regard to bacteria.

Horses and Cattle Die in Pastures.

The disease has been known for many years in the Pecos Valley of New Mexico and Texas, where it has caused heavy losses of cattle and horses in pastures. It has seriously affected the dairy industry because of the rather general belief that it can be transmitted by milk and butter to young animals and human beings. Because of the fear of transmission of the disease the sale of milk and butter has entirely stopped from certain localities. The department's experiments conducted up to this time have not in any particular confirmed the popular belief that young animals taking milk of adults which have eaten the plant contract the disease.

Marked depression is the first symptom of the disease. The animals are inactive, appear stupid, usually stand humped up, and move with a stiff gait, this stiffness being especially marked in the forelegs. When the animal is made to move about sometimes the forelegs give way, it comes down on its knees, and may even attempt to walk in this posture. The inactivity increases and culminates in extreme weakness. Marked muscular trembling is present, and this may be considered as diagnostic of the disease; in fact, sometimes the ailment is known as the "trembles." In the latter stages the animal lies down most of the time, and eventually is unable to get on its feet.

Affected Animals May Recover.

No specific medicinal treatment is recommended for affected animals, but if live stock can be prevented from eating any considerable quantity of the plant and are removed to good pasture, they are likely to recover. It is practicable by digging to destroy the plant in affected pastures. In the experimental work it has been found that animals showing pronounced symptoms, if taken away from the plant and put on good pasture, begin to recover surprisingly soon. If the animals are removed from the plant in the early stages of the disease and supplied with an abundance of good feed, most of them will recover without any further treatment.

YOUNG NEGRO CLUB BOYS PUT MONEY IN THE BANK

As evidence of earnest work on their projects, 15 Negro boys of Marengo County, Ala., members of a special pig and corn club, now have a total bank balance of $648, or an average of $43.20 for each boy. The least amount in the bank to the credit of any one boy is $7 and the largest is $150.

Through the efforts of the State Negro club agent, representing the United States Department of Agriculture and the State agricultural college, in cooperation with Tuskegee Institute, the club was formed in 1917, on the plantation formerly owned by Gov. Thomas Seay. It has grown to a membership of 15 boys, varying in age from 12 to 18 years.

When these boys joined the club they were made to realize that if they expected to succeed it would be necessary for them to be alert, to study very carefully all instructive literature sent to them and all given them in person by their club leaders, and then follow faithfully the lessons of thrift and economy taught them throughout their club career. Their bank accounts prove the practical worth of the clubs to these boys, who have incidentally learned to produce more corn on an acre, to grow a better pig at a greater profit, and, finally, to be better citizens.

GOAT GRAZING IN BRUSH AIDS FIRE PREVENTION

An experiment in grazing goats over old burned forest areas recently was tried out with success on the Ojai district of the Santa Barbara National Forest, Calif., by the Forest Service of the United States Department of Agriculture. When there is a dense growth of brush it is often difficult for fire fighters to reach a forest fire, and it was thought that goat grazing would open up such areas without killing the brush or causing erosion.

Because of the multitude of individual plants, none of them were browsed injuriously when the goats were turned on to the area and the root systems remained intact. The largest goat permittee, who operates a profitable cheese factory, is well satisfied with the range. The kids had to be taught to eat the brush by feeding them a little cut brush every day before they are turned out. Contrary to general expectation, the goats go voluntarily into the dense brush. They are not apt to stray, for when they are filled up they seek open spots.

The narrow trails made by the goats would, with a minimum of labor, check a ground fire. The grass growth has increased, and bunch grass growing along the trails traversed twice a day by the goats is untouched and allowed to seed. The grazing capacity of this brush area is 1 acre a head a year. The yearly cost of running goats, including grazing fee, is $1 a head. This is offset by the manure conserved in bedding corrals, which is sold at the same rate. The annual loss amounts to 5 per cent, whereas 10 per cent is considered normal elsewhere. The luster on the mohair, which appears but once a year on goats in some places, is present at all times on these Santa Barbara goats. The fleeces are exceptionally clean because none of the chaparral species have burrs.

Grazing on burned areas should not be deferred more than eight years after a fire, it is said. After that the brush is too high above ground to give satisfactory results.

GUMMED PAPER DRESS FORMS INTEREST INDIANA WOMEN

Outstanding results in teaching dress-form making have been obtained in Indiana by extension workers of the United States Department of Agriculture and the State agricultural college. The State leader of home demonstration agents reported on September 1 that 3,126 dress forms were made in the State during the year. Many other forms were known to have been made without being recorded in the regular way. The system used was to train 10 local leaders in each county, who then conducted community meetings and reported to the home demonstration agent on the work done. As the average cost of a paper dress form is 90 cents, the total cost of the 3,126 reported was $2,813.40. The minimum price of a commercial form averages $9. The home-demonstration leader says that through this one project more women have been interested and organized than through any other work.

Public Shooting Grounds in Louisiana in Line With Policy of Federal Bureau

Of the more than 6,000,000 hunters of the United States many will be benefited by the recent action of authorities in Louisiana in setting aside the Pass-a-l'Outre Public Shooting Grounds, a tract of 60,000 acres at the mouth of the Mississippi River. Here the sportsman of moderate means can enjoy all the opportunities for wild-fowl shooting enjoyed by wealthy members of the exclusive clubs in that region. The action taken is in direct accord with recommendations made by the Biological Survey, United States Department of Agriculture. Louisiana is one of the first States to adopt the broad policy of protecting its citizens against monopolization of the desirable hunting grounds by exclusive clubs.

In the Pass-a-l'Outre reservation there is one lagoon which it is proposed to set aside as a sanctuary where all wild fowl will find refuge from the gun of the hunter. The shooting grounds are dotted with duck ponds, and make one of the finest duck-hunting preserves in the United States. It is located on practically newly created ground, built up in the last few years by the Mississippi with the sediment constantly carried down and deposited where the river pours into the Gulf of Mexico. Were it for sale, the property could hardly be bought for much short of $500,000.

Day's Bag Is 25 Ducks.

The season for hunting wild fowl on the new shooting grounds will extend from November 1 to January 31, and the law permits each hunter to shoot 25 ducks each day. To prevent overcrowding, hunters will be required to register, and accommodations will be provided for an average of 100 hunters, more than it is probable will be there on any one day.

"An extension of such public-spirited and progressive conservation measures by other States," said Dr. E. W. Nelson, chief of the Biological Survey, in commenting on the action of Louisiana, "will result in the retention of water areas in various parts of the country where our migratory wild fowl may have feeding grounds and places to breed, and where the public can continue to exercise the splendid health-giving sport of wild-fowl hunting during the open season. The New-Anthony bill recently introduced in Congress (S. 1452 and H. R. 5823) will, if it becomes a law, enable the Federal Government to join with the States in establishing a great series of breeding places for wild fowl and public shooting grounds throughout the country, thus insuring the perpetuation of wild-fowl hunting.

"According to its terms, the New-Anthony bill proposes to accomplish two main objects: First, the purchase, or rental, and maintenance of marsh and water areas especially suitable for migratory wild fowl, which shall be used as free public shooting grounds in the open hunting season and safeguarded as breeding and resting places for these birds in the close season; and second, the administration of the migratory bird treaty act in order more adequately to maintain and increase the supply of migratory birds, including not only the ducks, geese, and others classed as game, but the great host of smaller species which are so vitally essential to the agricultural interests of the country through their unceasing war on injurious insects.

Larger Return Than from Drained Land.

"The passage of the migratory bird treaty act constituted the first important step toward insuring the perpetuation of our wild fowl and our wild-fowl hunting. The second step is of almost equally vital importance if we are to hold what we have gained. This is the conservation and perpetuation of a sufficient number of small inland lakes, as well as inland and coastal swamp and marsh areas to provide our migratory wild fowl necessary feeding, resting, and breeding places within the United States. Under proper conditions many lakes, ponds, swamps, and marsh areas will yield a distinctly larger return than would the same area drained for agricultural purposes."

HENS "ROLL THEIR OWN"—HIGH EGG RECORDS FOLLOW

As a result of eight years' feeding tests at the United States Department of Agriculture poultry yards at Beltsville, Md., a mash feed has been compounded which gives uniform high egg production. This mash, which has been tested for three years, is made of 4 per cent bran, 4 per cent middlings, 26 per cent meat scrap, and 66 per cent corn meal. In the experiments the hens were allowed to select their own mash ingredients. This is the proportion of those different feeds which they ate during the year. Several pens of 30 hens each, both of Leghorns and of Rhode Island Reds, have averaged from 140 to 155 eggs apiece while this mash was fed. While the mash seems to be especially adapted for Leghorns, it has given very good results with Reds. Wyandottes and Plymouth Rocks were found to get too fat on the ration and a mash somewhat lower in meat scrap has given better results with these breeds. Both the Wyandottes and Plymouth Rocks at Beltsville are large standard sized fowls. The tendency to become overfat on this mash probably would not be found in a smaller type of Plymouth Rocks, such as is often found on commercial poultry farms.

COLORADO SHIPS BIG POTATO CROP UNDER FEDERAL GRADES

Adoption of United States potato grades in Colorado has increased the amount of the crop marketed on this basis by more than 12,000,000 bushels, according to the August estimate of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, and raises to 11 the number of States that have made the United States grades official. Although the use of the Federal standards has been optional since the days of the United States Food Administration, they are now used officially for grading 30 per cent of the total crop and unofficially for 30 to 45 per cent more.

Following the lead of other Western States, Colorado created at the last session of the legislature a division of marketing and provided for the inspection of fruits and vegetables on the basis of State grades. The new division started work in July, and hearings were held in producing sections throughout the State for the purpose of establishing practical standards that would be satisfactory to the trade.

These conferences led to the prompt adoption of the United States grades recommended by the United States Department of Agriculture for potatoes, onions, cabbages, head lettuce, rough and washed celery, cucumbers, and fresh tomatoes. State standards were also promulgated for beans, cauliflower, and sacked vegetables.

Apple grades have been prepared also by the Colorado division of marketing, in cooperation with the Bureau of Markets and Crop Estimates, after a series of hearings, and grades for boxed and bulk stock will be announced in the near future. Owing to the late start of the work, the division of marketing will not attempt the inspection of peaches or pears.

The new work is receiving enthusiastic support from most of the growers and shippers, who feel that it will do much toward building up the reputation of Colorado products in the markets. Although the service is not yet fully organized, a total of 1,000 cars were inspected during the first month's operation.

Beavers and Martens in Alaska May Again Be Trapped During Coming Season

Under new regulations promulgated by the Secretary of Agriculture on August 30, 1921, for the protection of all land fur-bearing animals in Alaska an open season is provided for trapping beavers and martens in the Territory. This announcement will be read with interest by trappers in Alaska and by fur dealers in the United States, since there has been no open season for killing beavers there since 1910 and none for martens since 1916. Prior to the time when close seasons were established on these valuable fur bearers the animals were being rapidly exterminated. In many localities in the interior of Alaska beavers had disappeared entirely and martens were rapidly diminishing in numbers. It was to conserve them and permit them to increase that the close season was provided.

Divide Territory into Trapping Districts.

Because of the varying climatic and physiographic features of different parts of Alaska and in order to conserve our fur resources with justice to all, the Territory is divided into three trapping districts, in each of which the conditions relating to fur are comparatively uniform. District No. 1 includes the Aleutian Islands, the Alaska Peninsula, and neighboring islands, and southeastern Alaska, mainland and islands, from Yakutat Bay to Dixon Entrance, and in this area beavers now may be trapped from December 1 to March 31 and martens from November 16 to March 31.

District No. 2 includes the mainland and islands north of the areas of district No. 1 as far as the headwaters of the streams flowing into the Arctic Ocean north of latitude 68°. District No. 3 includes the region drained by the streams entering the Arctic Ocean north of district No. 2. In both these districts the open season for killing beavers and martens begins November 16 and ends March 31.

The Bureau of Biological Survey, United States Department of Agriculture, which administers the law protecting land fur-bearing animals in Alaska, has been conducting investigations for the past year, with a view of again permitting the killing of beavers and martens where practicable. These investigations have shown that while in some few districts beavers and martens are still scarce, in many others they have increased to the extent that no harm will result in allowing them to be killed during at least one season. If after one season's trapping it is found that these valuable fur bearers can not maintain proper numbers, the matter of again providing a close season the year round will be considered.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended September 14, 1921:

Judging Sheep. By G. H. Bedell, Animal Husbandry Division. Pp. 23, figs. 27. Contribution from the Bureau of Animal Industry. July, 1921. (Farmers' Bulletin 1199.)

Home Demonstration Bears Fruit in the South. By O. B. Martin, States Relations Service. Pp. 7. (Separate 833, Yearbook, 1920.) Price, 5 cents.

Bureau of Biological Survey. No. 42. Hunting of Migratory Game Birds on Nine-Pipe and Pablo Reservations, Montana. Pp. 1. September 12, 1921. Price, 5 cents.

Bureau of Biological Survey. No. 43, Regulations for the Protection of Land Fur-Bearing Animals in Alaska. Pp. 4, September 10, 1921. Price, 5 cents.

Bureau of Chemistry. Index to Nos. 1 to 24, 1921. Pp. 127–172. September 9, 1921. Price, 5 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

Utah Farm Families Enjoy Summer Agricultural Camp

The first annual summer encampment of Utah farmers and their families was held on the campus of the State agricultural college at Logan, August 2–5, and proved an unqualified success. Extension workers of the United States Department of Agriculture and the college, including county agents, home-demonstration agents, and club leaders, and a Washington representative of the department, joined in providing a pleasurable and profitable holiday for the 949 persons who attended the camp. Tents supplemented college buildings for sleeping quarters. There were 212 children to be cared for while the parents were occupied with their own special program.

The women's rest room was transformed into a playroom for the smallest ones, fitted up with sand piles, tables, saws, hammers, nails, dolls, scissors, paper, painting sets, and similar amusements. Milk was provided twice a day. An outside playground offered swings and slides. Older boys and girls took canyon trips, hikes, swims, or lessons in basketry.

Live-stock and grain-judging contests were held each morning between teams from the various counties in the State. The women competed in sewing and millinery work. Individual scores were then added together and a large silver trophy cup, to be held until next season's encampment, was presented by a Salt Lake City bank to Utah County, which made the highest score. Utah County was also the best represented, having 230 of its farm people at the camp. Cache County had 164, Weber 157, and Box Elder 75.

The nutrition projects of the home demonstration agents were strengthened by talks given by Dr. Caroline Hedger, child specialist. She stressed the need of an all-round training of the family in health matters, including general standards, diet, care of teeth, healthful dress, increased recreation, good music, and a balanced method of living. She recommended frequent physical examination, especially for children, and wise study and control of children by parents.

HOW FEDERAL ROAD AID STANDS AT THE END OF FIVE YEARS

Continued from page 1.

twice as much as the amount earned during the four years preceding.

The new projects submitted during the year bring the total amount of Federal aid obligated up to $247,956.456, as compared with $109,830,366, which was the amount obligated on June 30, 1920. At this rate it is expected that the small balance of $18,000,000 still unobligated will be taken up in a very short time.

The month of June was a record month in every way. The mileage of completed projects increased by more than 1,200 miles, more than twice the amount reported for the month of May. Funds allotted to work actually under construction increased by $13,670,925.

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Weekly News Letter

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OUTBREAK OF CORN BORER FOUND IN NORTHERN OHIO

Insects Believed to Have Been Blown Across Lake Erie from Canada by High Winds.

Nearness to Corn Belt Considered a Serious Menace by Entomologists—Department Will Concentrate Efforts in Ohio Toward Checking Spread of the Pest.

The fight to protect the corn belt against the advance of the European corn borer is now to be concentrated in Ohio, where, according to reports to the United States Department of Agriculture, infestations of the pest have been found along the entire southern shore of Lake Erie over a strip varying from 6 to 12 miles in width and extending to within 6 miles of the Indiana border. It is at the western end of the lake that the borer also threatens a descent upon this country from Canada by crossing the Detroit River. The department is preparing to reduce its efforts against the pest in other places and in cooperation with Canadian and Ohio authorities concentrate them in Ohio.

Heavy Infestation in Ontario.

For some months the Canadian authorities have been combating the pest on the northern shore of the lake, where it has gained a strong foothold, practically devastating entire cornfields in the vicinity of St. Thomas. A three-days' heavy wind at the period when the moths were flying is believed to have blown some of them across the lake into Ohio.

Every possible effort, it is said, will be made to hold down the infestations on the Ohio and Pennsylvania side of the lake. Farmers will be urged to cut their cornstalks as close to the ground as possible, as the insect makes its winter home in the stalk. For this reason, too, fall plowing will be recommended. The Ohio authorities, it is said, are fully alive to the need for checking the spread of the pest, and are cooperating with the department and conducting work of their own toward this end.

Floating Cornstalks a Source of Danger.

This is the first instance known in which the corn borer was carried any great distance by wind. It has been known, though, to travel by water in floating cornstalks, and in this manner has made its way to islands. This is one ominous feature of the presence of the borer in Ohio, it is said. At present the infestations are in a strip that drains into Lake Erie, and floating stalks are not likely to do much harm. However, the divide where the drainage of the Ohio River begins is only a few miles south of the infested area. Once over this watershed, it is said, there is no telling where the pest may be carried. It is thought altogether possible that infested stalks in that event might be carried even to places far down the Mississippi River.

The European corn borer has been known in this country only a few years. It is well known in northern Europe, where it does great damage to corn, especially in Austria. It is supposed to have come to this country and to Canada in importations of broom corn from Europe, and at present several large areas in New England and New York are under Federal quarantine to prevent its further spread. Its presence in Ohio is one of the most important developments since it entered this country. The advisability of putting a Federal quarantine on the newly infested area will be considered at a hearing of the Federal Horticultural Board of the department to be held in Washington, D. C., October 11.

The following wireless message to boy and girl club members at the Eastern States Exposition, Springfield, Mass., was sent at 10 o'clock, September 22, by Secretary Wallace:

To Members of Boys' and Girls' Clubs, Eastern States Exposition, Springfield, Mass.

Hello, boys and girls!

I have just received a report telling of the fine exhibits and demonstrations you are making at the Eastern States Exposition. Fine work! The Department of Agriculture is proud to work with you in showing the people of the Eastern States what club work is and how it makes better farming and better living. I want you to know that the department is back of you in your work. Our hopes for a better agriculture, a better country, and a better people depend largely on you. I know you will not disappoint us. To each one of you I send best wishes for success.

Please tell all the boys and girls who will gather at the Exposition on Children's Day to-morrow that I wish I could be with them.

Good-by and good luck. Take care of yourselves.

HENRY C. WALLACE,
Secretary of Agriculture.

GREEN MANURE CROPS HELP BUILD UP RUNDOWN LAND

Practical and Profitable Soil Building Demonstration Given by South Carolina Farmer.

Shows That Deeper Plowing and Turning Under Green Manure Crops Doubles Yields in Five Years—Every Acre now Produces a Cover Crop.

Soil building is a sure way of increasing production in the South, which is a paramount problem with southern farmers at the present time. Extension workers of the United States Department of Agriculture and the State agricultural colleges believe in stressing the great importance of soil-building demonstrations, even though it may be necessary to wait 4 or 5 years to begin to realize the full benefits.

The county agent of Anderson County, S. C., gives details of one outstanding demonstration in his county that was carried out in accordance with the principles of green manuring and soil building, which have long been advocated by the department and the agricultural experiment stations.

Prepare Seed Bed Thoroughly.

In 1909, Mr. Wade Drake, of Anderson, S. C., bought 200 acres of poor, run-down land, gullied and scarred from neglect. He began by plowing a little deeper than his neighbors and preparing the soil better for his crops, which gave better yields accordingly. Then he turned under several crops of cowpeas, sowed small grain, and followed with peas. While these cover crops of cowpeas turned under might in some instances have a cash value, Mr. Drake found that they cost him actually less than $5 an acre each year. The increase in the succeeding crops has been many times greater.

Before 1914, his land was producing more than double what it yielded when he bought it. At that time he added 225 acres, and with the advice of the county agent and all the information he could obtain about soil building from the United States Department of Agriculture and Clemson Agricultural College, began to work over his entire tract. He reasoned that if he added a winter crop to his summer soil-building crops he would

achieve his end much faster. To prevent winter leaching of plant food he put in a good system of terraces and planted rye and other grains as a protection to the soil.

Good Results with Vetch.

Next he tried hairy vetch in inoculated soil with good results. He harvested seed for many more acres, but left enough seed on the land to insure a good stand of volunteer vetch the following fall. In the spring of 1916 many acres of vetch which would have produced more than a ton an acre were turned under for fertilizer in spite of the protests of his neighbors, who considered this a waste of good feed. During the ensuing years crimson clover, velvet beans, bur clover, Abruzzi rye, and other crops have been added to his system of soil building until every acre of land produces each year a cover crop which is turned under for enriching the soil.

In the beginning Mr. Drake used about 300 pounds of fertilizer an acre, and his yields were about half a bale of cotton, 15 bushels of corn, and 15 bushels of oats an acre. In 1920, after the soil had been built up by green manuring, liming every six years (2 tons of ground limestone an acre), and more liberal fertilizing, the average yields to the acre were 70 bushels of corn, 50 bushels of oats, 25 bushels of wheat, and 1.97 bales of cotton. Fertilizers were used at the rate of 600 pounds an acre of a mixture of 400 pounds of 16 per cent acid phosphate and 200 pounds of 7 per cent cottonseed meal, with 50 pounds of nitrate of soda in addition applied to the cotton just after it was chopped out.

To inoculate vetch, Mr. Drake secured soil from a field that had previously grown vetch successfully, moistened the seed with water made sticky with molasses, and rolled the seed in the soil till well covered. The seed was sown and covered lightly to keep the bacteria from being killed by the sun. A half bushel of soil was found to be sufficient to furnish inoculation for enough seed to sow an acre, about 30 pounds. Planting was done from September to November. Vetch never freezes out in this section when once well established.

Inoculating for Clover.

The same method was employed with crimson clover. Soil was secured from a field that had previously grown crimson clover or other clovers that carry the same bacteria, and the seed, treated the same way as for vetch, was sown and covered lightly, using a harrow or heel sweep—25 pounds of cleaned seed or 25 to 35 pounds of uncleaned seed being used to the acre. Uncleaned seed—that is, just as it is stripped from the plants—is often sown without being covered on land that is already inoculated, and gives perfect satisfaction.

Vetch seed is saved by simply raking the vetch off the land with a hayrake after the seed has matured. Sometimes Abruzzi rye is planted with vetch and both are raked and threshed at the same time. Mr. Drake has made as much as 600 pounds of vetch seed an acre. Crimson clover seed is saved by using a clover stripper when the seed is thoroughly ripe, as explained in Farmers' Bulletin 646. The yield of crimson clover seed to the acre is from 500 to 800 pounds.

From Poverty to a Competence.

When Mr. Drake bought the first tract of land of 200 acres he had no money. He had a mule and a poor supply of tools and his wife had $1,400 in cash. To-day the land is paid for; Mr. Drake has over $10,000 worth of farm machinery, plenty of good work teams and other live stock, modern conveniences of every kind on the farm, 255 bales of cotton without this year's crop; some cash, valuable stocks and bonds. The cotton more than covers all outstanding liabilities. He is making money and improving his farm each year.

MEASUREMENTS SHOW FLIES TRAVEL LONG DISTANCES

That the house fly not uncommonly makes a journey of 5 to 6 miles in the space of 24 hours, is shown by experiments conducted by the Bureau of Entomology, United States Department of Agriculture. The ease with which flies travel many miles shows the importance of general sanitary measures to destroy breeding places.

Fly flight tests were conducted in northern Texas, where approximately 234,000 flies of many different species were trapped, then dusted with finely powdered red chalk, and liberated. Fly traps baited with food highly relished by the flies were placed at measured intervals in all directions from the points of release. By means of these secondary traps, it was possible to determine the direction and flight of different species of flies.

The tests showed that the flies, after regaining their freedom, would travel distances up to 1,000 feet in a few minutes. The screw-worm fly evidenced its power to cover a half mile in 3 hours, while the black blowfly traveled anywhere from half a mile to 11 miles during the first two days release. The house fly covered over 6 miles in less than 24 hours. Obervations at the Rebecca Light Shoal off the coast of Florida seemed to show that flies come down the wind from Cuba (95 miles distant), and at times from the Marquesas Keys (24 miles distant), and even from Key West, Fla., 46 miles away. The maximum distance traveled by the house fly in these experiments was 13.14 miles.

The tests proved that the injurious forms of fly life were not distributed on any large scale by artificial means, but rather that many of the far-flying species showed marked migratory habits.

CONSOLIDATION OF OFFICES ENGAGED IN EXTENSION WORK

Ordered by Secretary Wallace in Interest of Economy as Part of the Program of Reorganization.

Office of Extension Work in the South and Office of Extension Work in the North and West of the States Relations Service Combined Under Single Head.

Secretary Wallace announced September 21, 1921, the consolidation on October 1 of the Office of Extension Work in the South and the Office of Extension Work in the North and West of the States Relations Service. The new office will be known as the Office of Extension Work. Dr. C. B. Smith, has been named as chief of the combined organization. The new office will supervise all farmers' cooperative demonstration work and the Smith-Lever agricultural activities, commonly known as county agent work, in the 48 States. The details of the reorganization will be worked out by Dr. Smith with J. A. Evans as consulting specialist.

Present Methods to be Continued.

"Cooperative agricultural extension work has become a permanent nation-wide system of practical instruction," says Secretary Wallace in a letter to the directors of extension in the various States announcing the consolidation, "and is conducted in all the States in substantially the same way. It has been decided, therefore, to consolidate the two extension offices in the States Relations Service. Pending the adjustments necessarily incident to such combination, the methods relating to such work in the several States will not be changed. Matters regarding policies and details of cooperative relationships will be taken up with the directors individually and through joint conferences which may be held in connection with the meeting of the Association of Land Grant Colleges at New Orleans in November."

IOWA WOMEN MAKE 150 DRESS FORMS.

A woman in Humboldt County, Iowa, learned how to make a dress form and became a local leader for that project in her community. She reports to the home demonstration agent of the United States Department of Agriculture and the State agricultural college that over 150 dress forms have resulted from the one demonstration at which she learned the process.

Texas Boys Back From Trip to Europe—Visit English Royal Live-Stock Show

The three Texas farm boys who were sent to the annual agricultural and live-stock show of the Royal Agricultural Society of England in July by the Southeastern Fair Association as a prize for winning the live-stock judging competition held for boys' agricultural club members at the fair in Atlanta, Ga., last fall, have returned after a trip rich in experience and inspiration.

The successful boys were Gilbert Wieting of Marlin, Falls County, Jack Turner, of Hillsboro, Hill County, and Alva Debnam, of La Mesa, Dawson County. They were accompanied on the trip by H. H. Williamson, State agent in charge of county agent work of the Agricultural and Mechanical College of Texas; H. B. Ross, county agent of Falls County; and I .W. Hill of the United States Department of Agriculture in charge of boys' agricultural club work in the Southern States.

Show Covered 140 Acres.

After landing at Liverpool, the party proceeded to Derby, where the eightieth annual show of the Royal Agricultural Society was in progress. On the way stops were made at Chester to see the fine live-stock farm maintained by the Duke of Westminster, and at Crewe the Americans were given an opportunity to study the English marketing system. Two days were devoted to a thorough inspection of the Royal Show, where they saw the most remarkable exhibition of purebred cattle, hogs, sheep, and horses to be found in the Old World, including over 3,500 animals.

The show, which covers 140 acres, was the greatest in the history of the society, the number of entries breaking all records of the 79 shows that have preceded it. Visitors and buyers were in attendance from Denmark, France, Holland, Spain, and even from the Far East, looking over the display and competing in the sales of stock. The American boys had an unusual opportunity to see the best in live stock that English farmers and breeders have to offer, selected from the 60 or more breeds of cattle, horses, sheep, and swine that England can boast.

Hardly second in interest to the live-stock display was the exhibition of agricultural machinery, including European and American makes. The exhibit of live-stock feeds was another interesting subject for study, since, owing to the necessity for importing a large proportion of the feeds used, English live-stock feeders excel in the economical feeding of concentrates.

Following the visit to the royal show, the boys traveled to London. A pleasant feature of their stay in London was their entertainment on the 4th of July as guests of the Daily Mail at Welwyn. Here they found a young farmers' club started by Lord Northcliffe and patterned after boys' and girls' clubs of this country. Guests at the luncheon included representatives of the British department of agriculture and fisheries and the American Embassy. Many cordial invitations from English farmers and breeders to visit their excellent herds and other agricultural enterprises of interest gave the young Americans the chance to know their English cousins at first hand and to taste of the hospitality that is traditional in Old England.

Trip to the Continent.

Leaving London, the party went on a hasty tour through France, Belgium, and the Netherlands, returning to London and from there to Edinburgh, from which point as a center several short trips were made into rural Scotland, including a visit to the farm of the famous Shorthorn breeder, William Duthie, near Aberdeen.

WILL DISCUSS CAUSES OF GRAIN-DUST EXPLOSIONS

The first complete public discussion of the grain-dust explosion in the Armour elevator on the Calumet River, Chicago, last March, in which six lives were lost and $4,000,000 worth of property destroyed, was given by D. J. Price, engineer in charge of the office of development work of the Bureau of Chemistry of the United States Department of Agriculture, before the Western Society of Engineers in Chicago, October 3. The explosion was the most destructive of its kind in history, and occuring in a plant that was regarded as a model of elevator construction, it has caused extensive study of the necessity of further perfecting safety systems. Demonstrations of grain-dust explosions with a model elevator, and a new film on dust explosions were shown in connection with the address.

INGENIOUS DEVICE WILL SHOW WHAT HAPPENS TO ROADBEDS

Facts about what happens under a roadway as traffic passes over it are being obtained by the use of an ingenious device perfected by the Bureau of Public Roads, United States Department of Agriculture. The device is one of the new instruments developed by the bureau in its efforts to discover what thickness of roadbed should be constructed for heavy or light traffic on various kinds of soil.

Primarily the device measures, at desired distances, how the burden of traffic is distributed through the roadbed to the soil on which it rests. A thick roadbed lightens the load on every square foot of underlying earth or rock; a thin one places thereon more weight. How far distant from the surface point of contact—where load meets road—the weight is distributed and the possible formula for its distribution are being determined by experiment. When the facts are fully known and the traffic burden on the near-by and underlying soil is accurately measured, road makers will have a valuable guide as to the thickness of the roads they should construct on varying kinds of subsurface.

A semifloating metal drum, an indicator, compressed air, slabs of roadbed made of different materials and thickness, and a measured load go into the making of the experiment, which will be conducted at the department's experimental farm at Arlington, Va.

Opportunities Close at Home for Girls Through Club Work

How to take advantage of the opportunity close at home is a lesson a good many girls have learned through club work under the direction of the United States Department of Agriculture and the State agricultural colleges. Vera is a Florida girl, in her second year of canning club work. The one-tenth acre of tomatoes required of club members was faithfully cultivated this year, and also another tenth-acre plat which she planted in beans. Her tomatoes were the first on the market and sold for $6 a crate. From the fresh tomatoes alone, not counting what she sold canned, she cleared $161. The beans matured late and also brought a good price.

When school was over, Vera looked about for a profitable occupation. She lives near a vacant old store, which gave her an idea. Before risking money on an uncertain venture, she experimented with a little cool-drink stand next to the store building. This did not involve much investment of her tomato money, and yielded good returns. It was soon evident that what the district really needed was a little grocery and bread store. Her first purchases in this direction were sold from the stand, but in a very few weeks her profits warranted renting the old store next to her little stand. Now she has about $300 worth of stock, besides many cans of tomatoes and beans of her own raising to sell. She sews when there are no customers. She is banking an average of $50 a week.

Weekly News Letter

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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PACKERS APPROVE WIDER SCOPE FOR MEAT INSPECTION

The United States Department of Agriculture has received recently the following resolution, unanimously approved by all the members of the Institute of American Meat Packers at their sixteenth annual convention, held in Chicago in August:

"Whereas the American public does not appear to be generally informed about the merits of the Meat Inspection Service of the Bureau of Animal Industry, United States Department of Agriculture,

"*Be it resolved*, That the Institute of American Meat Packers lend its assistance and cooperation in developing a plan for better acquainting the people with the merits of this inspection."

While many members of the institute are not operating under Federal inspection, the general feeling at the meeting was one of entire approval of the good accomplished by the meat inspection service and a readiness to consent to the adoption of the inspection where it is not at present carried on. The members who are already operating inspected establishments have indicated in connection with the above resolution that the assistance of the Bureau of Animal Industry in furthering the adoption of Federal meat inspection will be greatly appreciated.

The scope of the Federal Meat Inspection Service can be seen from the following figures: During the fiscal year 1921, 62,252,442 animals of all kinds received post-mortem inspection. Of these, 189,874 were condemned. Parts condemned numbered 671,504. Establishments operating under Federal meat inspection during the year numbered 892, and were located in 265 cities. In addition to the inspection of animals both before and after slaughter, Federal inspectors examine large quantities of meat products, such as hams, bacon, sausage, lard, oleomargarine, and similar products. The meat-inspection service, which is one of the most important activities of the United States Department of Agriculture, requires from 2,000 to 2,500 trained inspectors.

ASSIST CANADA IN STUDY OF GRAIN-DUST EXPLOSIONS

The United States Department of Agriculture has again been called upon by Canadian Government officials to assist in cutting down the hazard from dust explosions in Dominion grain elevators.

On invitation of J. Grove Smith, Dominion fire commissioner, the department sent D. J. Price, engineer in charge of the office of development work of the Bureau of Chemistry, to attend a conference held at Ottawa September 30, on the causes of dust explosions and methods of construction and management of elevators to prevent their occurrence.

The United States engineers previously have been called in by the Canadian officials to examine the ruins of the disastrous elevator explosion at Port Colborne, Ontario, and to look over the great elevators at Fort William and Port Arthur, on the north shore of Lake Superior. Engineer Price recently addressed a conference in Montreal similar to that to be held in Ottawa.

Lessons were drawn from the disaster at the Armour elevator in Chicago last March, in which six lives were lost and $4,000,000 worth of property destroyed.

An item for the purpose in the last regular agricultural appropriation bill has enabled the department to renew its work on dust explosions.

TO DETERMINE THE CAUSE OF WAVY ROAD SURFACES

What causes a "tarred" road to develop that peculiar scrubbing-board surface is a question that has been worrying the highway engineers quite as much as the long-suffering public. As often as not the symptoms appear in a macadam road that has been treated with asphalt. But the trouble is largely confined to roads built with tar or asphalt. Concrete and brick roads never develop such a surface, and ordinary dirt roads seldom do.

The Bureau of Public Roads of the United States Department of Agriculture is building at the Arlington, Va., experimental farm an experimental roadway 15 feet wide in an attempt to discover the cause of the trouble. The road is laid out in the form of a circle with a 90-foot radius, and its circumference, 565 feet in length, is to be divided into sections, each of which will be surfaced with a different kind of asphalt or tarred surface.

The experimental sections will be built exactly like actual road surfaces and when completed they will carry a "traffic" as much like actual traffic as it is possible to devise. The "traffic" will be supplied by a driverless motor truck which will be held to the circular path by means of a long arm extending from the center. The course of the truck will be altered from time to time so that the entire width of the roadway will be traveled.

It has not been possible to determine the cause by observation of actual roads because there are too many unknown quantities. The defect may be due to distortion of the earth under the road surface or to defects in the surface itself. It is probably caused in some way by the wheels of motor vehicles—how and why the engineers have not determined, largely because they have never possessed all the facts with regard to surface and subsurface conditions and character and weight of traffic.

EXPLAIN AND ILLUSTRATE SHEEP JUDGING IN BULLETIN

Improvement of the sheep industry depends to a great extent upon a more general understanding of what constitutes an inferior animal, and a broader appreciation of the methods of judging individuals, by a study of their external parts. It is probably true, in the opinion of animal husbandry experts in the United States Department of Agriculture, that the average person knows less about the methods to follow and the points to look for in judging sheep than with most other types of live stock.

To meet the needs for a better knowledge of sheep qualities, the department has issued a new Farmers' Bulletin, No. 1199, "Judging Sheep," in which the essentials of sheep judging are explained, a score card is given, with illustrated explanations of how to use it, and full directions are given on such special subjects as judging the age of sheep by the teeth and the location of market cuts in the carcass. The bulletin will be sent free on request to the department.

JUNIOR FARMERS IN IOWA ORGANIZE THROUGHOUT STATE

A State-wide organization of junior farmers was started on August 29 by 600 members of boys' and girls' clubs, who met at the Iowa State Fair. The object of this State organization of club members is to assist the county club agents of the United States Department of Agriculture and the State agricultural college and other club workers with the establishment and conduct of local clubs, to promote club work at county fairs, and to assist the State club leaders of the Iowa agricultural extension service in carrying on successfully club exhibits, team demonstrations, social activities, and club camps. Officers were elected and plans made for various committees.

Acceptable Roquefort Cheese Made in United States from Cows' Milk

Almost the entire world's supply of Roquefort cheese comes from Aveyron, a department or county in southern France. It is made principally of sheep's milk, and ripened in caves. The steady demand in this country for the green-mold varieties of cheese, especialy Roquefort, has led specialists in the Dairy Division of the United States Department of Agriculture to experiment with the commercial manufacture of a domestic Roquefort cheese. As it would be impossible to obtain a sufficient supply of suitable sheep's milk, cows' milk has been used. The chief effect is to give the cheese a slightly yellower color. The temperature, humidity, and peculiar ventilation of the Roquefort caves which are favorable to mold growth and proper ripening of the cheese, have been approximated at Grove City, Pa., in special curing rooms. Considerable cows' milk Roquefort cheese of good quality has been produced and marketed from this experimental plant.

Bulletin Gives Technical Information.

In United States Department of Agriculture Bulletin No. 970, "Manufacture of Cows' Milk Roquefort Cheese," detailed technical information for commercial cheese manufacturers who desire to make Roquefort-type cheese is given. The bulletin may be had upon application to the United States Department of Agriculture.

Roquefort is one of the highest-priced imported cheeses on the American market. A good domestic cheese of Roquefort type has brought an average wholesale price only 10 or 15 cents below that of the imported cheese. The cost of manufacture was estimated at 46 cents per pound, when milk testing 3.8 per cent fat was worth $3.20 per 100 pounds.

Sheep have been bred for centuries in the vicinity of Roquefort, France, for making the cheese. It is doubtful whether such a milking strain can be found in the United States, especially in sufficient numbers to warrant the establishment of an industry based on sheep's milk. Cows' milk has, therefore, been used. It is believed that the prejudice against the slightly yellower color of cows' milk Roquefort can be broken down by proper advertising and selling methods.

The peculiar condition found at Roquefort lies in the natural curing rooms furnished by the limestone caves in the hills around that town. These caves have a temperature of 45° to 50° F. the year around. Artificial cold storage as practiced in the United States can easily keep the cheese that cold, but it is likely to be too dry; and without the proper degree of humidity in the air, the cheese can not ripen.

Regulate Temperature and Humidity.

The trick that had to be turned in making Roquefort cheese in the United States was to learn how to regulate the temperature and the humidity at the same time, to furnish exactly the right degree of each. This has now been successfully accomplished, and carried out on a commercial scale. Roquefort cheese is kept in curing rooms five or six months.

In any cheese, what is called curing or ripening means simply leaving the cheese alone in the right surroundings so that the microscopic life, known as bacteria in some cases, and in other cases as mold, can develop and ferment the cheese to the right flavor. The ferment used in Roquefort cheese is a green mold. It is obtained from imported Roquefort cheese and propagated. Then when cheese is made the mold, in powdered form, is sprinkled into the cheese at the time it is set away in forms to drain. Each cheese is afterwards pierced with 30 or 40 holes to let in the air. Mold must have air in order to grow, just as corn must have sunshine. Two other varieties of cheese are fermented with molds of the same type as Roquefort—namely, Gorgonzola and Stilton, made in Italy and England, respectively.

WILL SOON COLLECT SEED-GRAIN LOANS IN NORTHWEST

In connection with the collection of the 14,000 seed-grain loans made by the Government in the Northwest last spring to aid the farmers in planting their crops, an office has been established at Grand Forks, N. Dak., by the United States Department of Agriculture, which had charge of administering the fund provided by Congress for this purpose. The areas in which the loans were made include western North Dakota, eastern and northern Montana, and limited sections of Idaho and Washington.

The new office has full records of the various transactions, and information regarding individual loans will be supplied to each of the grain elevators in the territory where the loans were made. When a farmer sells his grain the elevator operator will forward an amount sufficient to cover principal and interest to the office at Grand Forks or to the Disbursing Office of the Department of Agriculture at Washington, D. C.

The effect of the relief afforded by the loans for the purchase of seed grain, it is said, has been generally beneficial to the farmers of the regions where they were made. It has resulted in the sowing of larger acreages than would otherwise have been possible, and in some instances has enabled farmers to sow who would have been unable to do so without this help. The average loan made was $135, the limit to any individual being $200. Nearly the whole of the $2,000,000 made available for this purpose was lent in this matter, and as provided by the law went for the purchase of seed wheat, oats, barley, and flax. The rate of interest charged was 5 per cent.

HOT SCHOOL LUNCH HELPS MEXICAN PUPILS IN ARIZONA

Of 36 undernourished children in one of the Mexican schools at Winslow, Ariz., 32 showed a gain at the end of a 3-months' test to demonstrate the benefits of a hot lunch at school. The children were selected and the demonstration carried out under the supervision of the county home demonstration agent. After the Mexican mothers who were to prepare the lunch had been given the necessary instructions by the home demonstration agent, and the financial support of the Red Cross was assured, the demonstration was carried on for 3 months. The school board was so impressed with the result that it voted to continue the work at any cost.

Ten Mexican women volunteered to take charge of the lunch during the first term, two coming each day to prepare and serve the hot dish. The home-demonstration agent spent one week instructing two women each day in the preparation of the food, the way to serve it, and in sanitary dishwashing. The project was then left under the supervision of the principal of the school, with the Mexican mothers to do the actual work.

So many children wanted to stay for lunch that it was decided that any child bringing 5 cents would be served. This increased the number staying for the noon meal from 36, who were chosen because of undernourishment, to 85, or practically the entire school.

Besides improving the health of those 85 children, the lunch test has been beneficial to the women who have prepared and served it, for they have learned to select suitable foods for their children and the proper way of preparing it. Several of the women have told the home-demonstration agent they had never had fruit at home before the school lunch was established, where the children learned to like it so well that they asked for it at home.

The school lunch work has led to several improvements in the sanitation of the Mexican quarter of Winslow. The citizens arranged a clean-up day when yards, streets, and alleys were cleaned, garbage collected, and refuse burned, resulting in a greatly improved appearance throughout that section of the city.

Home Convenience Truck Shows How to Install Simple Water System in Homes

Water systems are lacking in many rural homes partly because of the cost of installation and partly because little is known of their possibilities. Through the home-demonstration agents of the United States Department of Agriculture an intensive campaign has been carried on for some months in Missouri to point out to farm people the advantages of the different types of household water systems.

The chief feature of the campaign is a home convenience truck supplied by the department of agricultural engineering of the State college. This carries as one of its exhibits a complete simple water system for the home, including a full-sized bathroom and kitchen, and information is distributed telling how to put a water system into a house at small cost. The coming of the truck to a community is preceded by local publicity. The extension leaders make a survey and determine the chief local needs, trying to find at least one farm ready to install a water system.

Cooperation of Plumbers.

When the demonstration has been given, the engineering specialist usually distributes leaflets describing the sink, drain, and pump system, the hot and cold water system, the gravity system, or the pneumatic water system. A card is given to "prospects" with a price list of plumbers' supplies obtainable locally, and the person interested is asked to check the system preferred. Then if the card is presented to the farm bureau office for indorsement within a week a discount frequently can be obtained from the plumbers.

As a preparation for the home convenience truck in Clay County, a plea was made to plumbers to install sinks of the right height. Three of the local plumbers visited gave price lists, and two agreed to make discounts on supplies ordered through the farm bureau within a week after the passing of the truck. In this county a letter was sent to every farm bureau member advising him of the coming of the water-system demonstration truck. Posters were distributed and the local press helped in every way. As a result, 106 persons, representing 48 families attended the four demonstrations. Five families wanted to install gravity systems, five pneumatic, and 17 a sink and drain.

Five meetings were held in Lafayette County with the engineering specialists from the State college, showing the water-system truck. Of 150 persons who attended, 30 signed blanks stating that they intended to install some kind of water system. Only 7 of those present had complete water systems. Eight others had sinks and pumps. In Jackson County, three and one-half days were spent in advance work for the home-convenience truck. Publicity was given through the medium of posters, signs, and circular letters to individual farmers. Similar work was done in Saline County.

Many Homes Lack Water Systems.

Four all-day picnics in Linn County during July furnished opportunities to demonstrate the home-convenience truck on each occasion. Among the 1,325 farm people who went to these gatherings, it was found that there were only 16 homes which had complete water systems and 40 with partial systems. There were 47 signers for the blanks. The home-demonstration agent met the women from five new communities, who asked to have the home-convenience truck in their communities. These five towns were later visited by the agent with the publicity man for the truck, to get plumbers' prices on equipment and to put up posters. The business men cooperated cordially.

Representatives of the rural engineering department of the State college devoted most of May, June, July, and the first half of August to work with the home-convenience truck in connection with the home-demonstration water-system project. It is thought that the work will require some attention at intervals through the year, particularly at the extension schools during December, January, and February.

HUNGARIAN VETCH PROVES A SUCCESS IN WESTERN OREGON

Experimental work of the United States Department of Agriculture, in cooperation with the Oregon Experiment Station, has demonstrated the possibilities of Hungarian vetch for the humid area of the Pacific Northwest. This vetch is particularly valuable on account of its ability to grow on wet, clayey lands where other crops make a much smaller growth. It has succeeded on the wet white lands of the Willamette Valley that are considered very poor soils for cropping purposes. It is perfectly winter hardy in this region, much more so than common vetch, though less winter hardy than hairy vetch. Another striking feature of this vetch is its good seed habits and heavy seed yields. Most vetches have rather poor seed habits, but Hungarian vetch is an exception.

It also possesses the good quality of being much less attacked by aphids than common vetch. In the season of 1917–18 aphids did serious damage to vetch at Corvallis and common vetch yielded practically no seed. However, in that season Hungarian vetch yielded 35.3 bushels of seed per acre. In experimental plantings at Corvallis, Ore., this vetch has yielded 33.7 bushels of seed per acre as an average for four years, while common vetch for the same years yielded 28.3 bushels per acre. Judging by the way bees visit Hungarian vetch while in blossom, it affords excellent bee pasturage.

This vetch can be grown anywhere in the Pacific coast States west of the Cascade Mountains in Oregon and Washington and the Sierra Nevada Mountains in California. However, its special place is for wet lands where common vetch does not do well. It has not proven of value for any other parts of the United States, though it has done fairly well in tests at a few stations in the Southern States.

JACK FROST ISN'T QUITE SO BAD AS HE'S PAINTED

Jack Frost is an embarrassing visitor if he comes too early or stays too late. but in the main he's a beneficent old duffer, and not the enemy of plant life that he is supposed to be, according to an article in the Journal of Agricultural Research, written by F. V. Coville, a botanist of the United States Department of Agriculture. The article records a series of experiments with healthy blueberry plants, and shows the relation of freezing winter temperatures to plant growth in the spring. One fact stands clear in the result—the dormant condition of the plant in winter is not the result of cold and freezing; on the other hand, cold stimulates the revival of life in the plant when spring comes again, it is said.

Such an explanation of the effect of cold is new to the everyday reader, who is used to looking upon winter air as detrimental to plant life, forcing the shrub into a dormant state scarcely better than death. But healthy, husky blueberry bushes which Mr. Coville sheltered in his greenhouse "went to sleep" just the same, despite the fact that the air was kept at a growing temperature. The shrubs, he admits, didn't go to bed so early as they did when Jack Frost used to hurry them off, but go to sleep they did. Their leaves dropped off; and in the warm greenhouse the plants went into a dormant condition exactly like that of others outside in the cold and snow. Moreover, they were late in waking when spring came. Some, indeed, slept through the whole year. The inference is that the plant's period of dormancy is a seasonal matter not induced by the cold, but that the early and luxuriant growth in the spring can not occur

unless the plant has been through a period of chill temperature.

In another experiment the investigator set a blueberry bush close to the greenhouse wall and passed a branch through into the warm interior. The warm branch and the cold ones became dormant as usual, but when spring days came the part of the plant that was under shelter failed to revive. The part that had been exposed to the weather emerged from its dormant state and made quick and healthy growth.

Mr. Coville believes that the cold weakens the plant cells, and by destruction in part turns the starch to sugar, thus assuring new growth. This event, he asserts, can not take place if the plants are protected from the frost and cellular injury. Whatever the cause, the results seem to be assured, and the horticulturist has a new and valuable aspect of the meaning of cold weather.

BETTER BREEDING RESULTS IN MORE WOOL AND MUTTON

Four distinct lines of investigational work are being carried on by the United States Department of Agriculture at the sheep experiment station near Dubois, Idaho. The purposes of these breeding experiments are:

The breeding of the heavy-shearing type of Rambouillet sheep with a desirable mutton form.

A study of the different types of crossbred sheep for the purpose of producing the type best suited to the western ranges.

A comparative study of different methods of utilizing range land for sheep raising, and different methods of supplying water on dry ranges.

The production of crops on arid lands that may be utilized for the winter feeding of sheep.

The Rambouillet flock consists of 800 animals. Efforts are being made to intensify the most desired characteristics, such as smooth, desirable mutton form and body free from wrinkles except about the neck, a face open and free from wool blindness, and a light shrinking, bright, and long-staple fleece.

The crossbred type of sheep is gaining in popularity on the western ranges, because the ewes shear heavy fleeces and produce lambs that mature earlier than fine wool lambs. Two principal types of crossbreds are being studied—the Corriedale, using as the foundation stock individuals that were imported from New Zealand in 1914, and the Columbia, a new breed made by crossing the Lincoln and Rambouillet breeds. The Columbia sheep have been developed at the station from the foundation.

The Columbia has returned the most wool and mutton, while the Corriedale has produced wool somewhat superior in character. The Corriedale has proved its general adaptability to western ranges, but the Columbia has evidenced signs of greater robustness and larger size. Lambs of the Columbia breed weigh heavier at weaning time than the Corriedale lambs. The department sheep experts believe there are advantages in both these breeds of sheep that might possibly be combined by crossing them. Such experiments are now in progress, and the early results indicate gratifying returns from these crossbreeding activities.

Production of Market Milk in Nebraska Shows Largest Income in the Winter

Here is what it costs, in labor and feed, to produce 100 pounds of market milk in eastern Nebraska: Winter, six months—concentrates, 41.2 pounds; dry roughage, 95.3 pounds; silage and other succulent roughage, 93.6 pounds; bedding, 11.1 pounds; human labor, 2 hours; horse labor, 0.06 hour; hauling and grinding concentrates, $0.016; pasture, $0.108; total costs, except depreciation on cows, $0.788; depreciation on cows, $0.081.

Cost Figured from Records.

Summer six months—Concentrates, 11 pounds; hauling and grinding concentrates, $0.004; dry roughage, 51.2 pounds; silage and other succulent roughage, 29.3 pounds; pasture, $0.653; bedding, 0.5 pound; human labor, 1.9 hours; horse labor, 0.08 hour; total costs except depreciation on cows, $0.805; depreciation on cows, $0.084.

The work of determining the cost of producing milk in this section covers two one-year periods. It was begun by the Bureau of Animal Industry, United States Department of Agriculture, in cooperation with the department of dairy husbandry of the University of Nebraska, in September, 1917, discontinued at the end of the first year, and resumed in September, 1919. The figures reported were based on actual records obtained by regular monthly visits of 24 hours each to 8 farms for two years, and to 22 other farms for one year.

The requirements for keeping the average cow one year were: Concentrates, 1,529 pounds; hauling and grinding concentrates, $0.60; dry roughage, 4,275 pounds; silage and other succulent roughage, 3,593 pounds; pasture, $22.01; bedding, 340 pounds; human labor, 113.6 hours; horse labor, 3.2 hours; other costs except depreciation on cows, $46.35; depreciation on cows, $4.78.

During the first winter and summer, the average incomes from milk were not sufficient to meet the average costs. In the second year the incomes were above the average costs in both seasons. The greater percentage of the year's income was received in the winter, but the feed, pasture, and bedding costs exceeded the summer costs by a greater percentage than the winter receipts exceeded the summer receipts.

Not Necessarily Applicable Elsewhere.

Although the figures obtained show what was required to produce milk for the Omaha market under the system of dairy management found in the section studied, and probably approximate the requirements in similar localities, it is pointed out by the department that they, of course, do not apply to dairying in sections where different conditions and methods of management prevail.

Additional details of the records and work are contained in Department Bulletin 972, "Unit Requirements for Producing Market Milk in Eastern Nebraska," recently issued by the United States Department of Agriculture. Copies of the bulletin may be had by addressing a request to the department at Washington, D. C.

SUNFLOWERS FOR SILAGE RECOMMENDED IN OREGON

In States where certain districts are high in elevation, so that corn can not be grown in sufficient quantities to make it a feasible silage crop, the United States Department of Agriculture and the State experiment stations recommend sunflowers for silage. Up to a short time ago there were no sunflowers, nor in fact any silos, in eastern Oregon counties, but through the activities of the county agents of the department, cooperating with the State agricultural college, the use of sunflowers has become quite widespread. Demonstrations are being carried on in Lake, Morrow, and Umatilla Counties.

Dairy farmers in Wallowa County who fed sunflower silage last year found they could reduce their cost of production very materially. There are 70 silos in Wallowa County this year. Four years ago there were but three. A thousand acres of sunflowers have been planted this year in the county, in spite of unfavorable season in 1920, when much of the crop was not harvested at all, or harvested too late to make good ensilage. Extension workers feel that this is a favorable indication of the appreciation of the crop on the part of Wallowa County stockmen. Five or six hundred acres are being grown in Deschutes County, where orders for seed were pooled.

Western Nebraska Potato Area Important—Ships Many Bliss Triumph for Seed

The temporary field station of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, was opened at Alliance, Nebr., August 25, to run until the end of the season, about November 15. This station was among the first marketing field stations established in the United States by the Department of Agriculture for the purpose of assisting growers and other marketing interests in the western Nebraska potato deal. Olnton D. Miller will be in charge of the station.

Market Crop in 13 States.

The western Nebraska potato section embraces all territory west of Long Pine in the north, Holdredge in the south, and Ravenna in the central part of the State. Between September 27 and November 13 last year 1,243 cars of potatoes were shipped from the section to more than 200 cities and towns in 13 States. The bulk of the shipments, over 700 carloads, went to 84 Nebraskan points. Iowa and Missouri received over 200 carloads. The remainder of the marketable crop went to Kansas, South Dakota, Illinois, Colorado, Wyoming, Oklahoma, Texas, Arkansas, Tennessee, and Indiana. A large number of potatoes were shipped after the station was closed, making a total of 2,999 carloads moving from Nebraska towns between July 29, 1920, and June 4, 1921.

An increasing quantity of potatoes is being shipped south for seed each year, and some seed potatoes are sent to Colorado. Nebraska's dry-land product, because of uniform growing conditions, possesses exceptional vitality as seed, the Bliss Triumph being practically the only variety shipped out of the State for this purpose.

Western Nebraska potato growers have nothing to contend with in the matter of insects, but scab, particularly in the dry-land districts, shows on a very large part of the crop, varying from practically none on potatoes from new land to deep-pitted scab on potatoes from old, poorly drained fields. This scab and the cuts and bruises caused by rough handling were the chief disqualifying factors in the shipping-point inspections in 1920. Damage from second growth was not great, as the rainfall was normal during the growing season.

Inspection at Point of Origin.

The grading of potatoes in Nebraska is a recent requirement. Despite the potentially high quality of their product Nebraska growers probably give their potatoes as rough treatment and exercise as little care in the sorting as do the growers in any other important section of the country. For this reason the State department of agriculture in July, 1919, adopted "United States Grade No. 1" and "United States Grade No. 2" as State grades specified as "No. 1" and "No. 2," and now requires that all shipments be inspected at point of origin.

No shipments of undergrade stock are permitted, except during a season when the State secretary of agriculture may authorize it on account of abnormal crop or market condition. Seed stock must conform to the requirements of Grade No. 1, except with regard to size. Largely as a result of the standardization being effected by the State grading law, the number of sales made "carloads f. o. b. usual terms"—that is, sales by wire, with inspection allowed at destination—has been increasing yearly.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended September 21, 1921:

Floors and Floor Coverings. Prepared in the Office of Home Economics, States Relations Service. Pp. 36, figs. 2. Contribution from the States Relations Service. August, 1921. (Farmers' Bulletin 1219.)

Composition of Cotton Seed. By Charles F. Creswell, formerly Specialist in Marketing Vegetable Oils, Bureau of Markets, and George L. Bidwell, Chemist in Charge Cattle Food Laboratory, Miscellaneous Division, Bureau of Chemistry. Pp. 221, pl. 1, map 11. Joint Contribution from the Bureau of Markets and Bureau of Chemistry. September 10, 1921. (Department Bulletin 948.) Price, 25 cents.

European Corn Borer in American Corn. By W. R. Walton, Bureau of Entomology. Pp. 20, figs. 7. (Separate 831 Yearbook 1920.) Price, 5 cents.

Unit Requirements for Producing Market Milk in Eastern Nebraska. By J. B. Bain, Dairy Husbandman; G. E. Braun, Market Milk Specialist, Dairy Division; and E. A. Gannon, Cooperative Investigator, Nebraska Agricultural Experiment Station. Pp. 16, figs. 2. Contribution from the Bureau of Animal Industry. September 19, 1921. (Department Bulletin 972.) Price, — cents.

Treatment of Ornamental White Pines Infected with Blister Rust. By J. F. Martin, Forest Pathologist, and G. F. Gravatt and G. B. Posey, Assistant Pathologists. Pp. 20, figs. 12. Contribution from the Bureau of Plant Industry. August, 1921. (Department Circular 177.) Price, 5 cents.

The Well-Planned Kitchen. Prepared by the Office of Home Economics. States Relations Service. September, 1921. (Department Circular 189.) Price, 5 cents.

Use of Explosives in Blasting Stumps. By George R. Boyd, Senior Drainage Engineer, Bureau of Public Roads. Pp. 15, figs. 5. Contribution from the Bureau of Public Roads. September, 1921. (Department Circular 191.) Price, 5 cents.

Inventory of Seeds and Plants Imported by the Office of Foreign Seed and Plant Introduction during the period from October 1 to December 31, 1916. Pp. 117, pls. 8. September 14, 1921. (Inventory No. 49; Nos. 43391 to 43979. Bureau of Plant Industry.) Price, — cents.

The Monthly Crop Reporter. Vol. 7, No. 9, September, 1921. Pp. 105–120. (Bureau of Markets and Crop Estimates.)

Journal of Agricultural Research. (For sale only.) Vol. 21, No. 11, September 1, 1921. Contents: Solenopotes capillatus, a sucking louse of cattle not heretofore known in the United States. (K. 101.) By F. C. Bishopp.—Rate of culm formation in Bromus inermis. (N. Dak. 1.) By L. R. Waldron.—Reliability of the nail test for predicting the chemical composition of green sweetcorn. (Md. 4.) By Charles O. Appleman.—Transmission of some wilt diseases in seed potatoes. (Oreg. 6.) By M. B. McKay.—Correlation and growth in the branches of young pear trees. (Calif. 31.) By H. S. Reed. Pp. 797–876, pls. 4, figs. 23. Price, 15 cents.

Science Seeks the Farmer. By L. C. Everard, Chief Editor, Division of Publications. Pp. 6, figs. 2. (Separate 832, Yearbook 1920.) Price, 5 cents.

Know Your Markets. By W. A. Wheeler, Bureau of Markets. Pp. 20, figs. 6. (Separate 834, Yearbook 1920.) Price, 5 cents.

Wood for the Nation. By W. B. Greeley, Forest Service. Pp. 12, figs. 4. (Separate 835, Yearbook 1920.) Price, 5 cents.

Conserving Our Wild Animals and Birds. By Edward A. Goldman, Bureau of Biological Survey. Pp. 16, figs. 9. (Separate 836, Yearbook 1920.) Price 5 cents.

Pig Parasites and Thumps. By B. H. Ransom, Bureau of Animal Industry. Pp. 6, figs. 3. (Separate 837, Yearbook 1920.) Price, 5 cents.

With the Irrigation Farmer. By Samuel Fortier, Bureau of Public Roads. Pp. 14, figs. 3. (Separate 839, Yearbook 1920.) Price, 5 cents.

Runts and the Remedy. By John R. Mohler, Bureau of Animal Industry. Pp. 16, figs. 7. (Separate 841, Yearbook 1920.) Price, 5 cents.

Hunting Down Stock Killers. By W. B. Bell, Bureau of Biological Survey. Pp. 12, figs. 4. (Separate 845, Yearbook 1920.) Price, 5 cents.

The Cost of a Bushel of Wheat. By F. W. Peck, Farm Economist, Office of Farm Management and Farm Economics. Pp. 8, figs. 2. (Separate 846, Yearbook 1920.) Price, 5 cents.

From Scrubs to Quality Stock. By D. S. Burch, Editor Bureau of Animal Industry. Pp. 6, figs. 2. (Separate 848, Yearbook 1920.) Price, 5 cents.

Roads. By H. S. Fairbank, Bureau of Public Roads. Pp. 14, figs. 3. (Separate 849, Yearbook 1920.) Price, 5 cents.

Cows That Make the Income Climb. By J. C. McDowell, Bureau of Animal Industry. Pp. 12, figs. 4. (Separate 853, Yearbook 1920.) Price, 5 cents.

Bureau of Animal Industry. No. 172. August, 1921. Pp. 77–86. Price, 5 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

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Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. IX. OCTOBER 12, 1921 No. 11

WALLACE APPOINTS COMMITTEE TO CONSIDER LAND PROBLEMS

Will Study Country's Present Crop Production, Home Consumption, and Foreign Demand.

Less Than Half of Total National Area in Farms, But Only Small Portion of Remainder is Potential Farm Land—Public Demands Wide Expansion.

Secretary Wallace has appointed a committee of six scientists of the Department of Agriculture to consider the entire problem of land utilization, especially with respect to the country's future requirements.

In appointing the committee Secretary Wallace suggested that as the basis of the work to be undertaken careful consideration should be devoted to the country's present crop production, home consumption and foreign demand, relating the land now under cultivation to present and near future demands. It seems to the Secretary that this study should be followed by a more careful survey and classification than has yet been made of lands which can be brought under cultivation in the future, and the conditions necessary to make it profitable under the plow.

Survey Arid, Swamp, and Cut-Over Lands.

The suggested survey would include the arid lands of the West suitable for irrigation, swamp lands which can be reclaimed by drainage, and the cut-over timberlands of the various sections. In studying the cut-over lands consideration will be given to their possibilities both for cultivation and for reforestation.

The personnel of the committee of six is as follows:

Dr. L. C. Gray, agricultural economist, Office of Farm Management and Farm Economics, chairman.

C. V. Piper, agrostologist in charge forage crop investigations, Bureau of Plant Industry.

Dr. G. M. Rommel, Chief Animal Husbandry Division, Bureau of Animal Industry.

C. F. Marbut, scientist in charge, soil survey investigations, Bureau of Soils.

E. E. Carter, assistant forester, Forest Service.

S. H. McCory, Chief, Division of Agricultural Engineering, Bureau of Public Roads.

At the present time a little less than half the total national area is in farms, and only about one-quarter of the total area is improved land. Many persons, deceived by these facts, assume that there is an unlimited reserve supply of farm land. Such is not the case, however; by far the greater part of the 1,000,000,000 acres not yet in farms probably can never be used for the growing of crops, and that part of the reserve land which may be regarded as potential farm land can be brought into use only at heavy expense for clearing, drainage, irrigation, or fertilization.

Per Capita Acreage Decreasing.

Population increases; land area does not. The acreage of improved farm land per capita, for instance, has declined at an ever-increasing rate since 1890. By 1950 the total population, at a normal rate of growth, probably will be about 150,000,000. This would require an addition of 243,000,000 acres of improved land if present per capita acreage of improved land is maintained.

This situation presents the national problem of how best to use drainable, irrigable, cut-over, and lands of inferior

(*Continued on page 8.*)

EVERY WEEK OBSERVE FIRE-PREVENTION WEEK

National fire-prevention week was observed October 2-9. Farmers, and all persons in rural communities, may well observe fire-prevention week every week. The Nation's total fire loss is estimated at 15,000 lives and $500,000,000 in property each year.

According to the statistics of the National Board of Fire Underwriters there were 38,266 fires on farms in a single year—1918—and the estimated loss was $18,166,710. That means that 38,266 rural families in 1918 suffered loss in degrees varying from slight damage to the loss of home, live stock, and, in many cases, human life.

FARM FIRE LOSSES REACH TWENTY MILLIONS YEARLY

Lack of Fire-Fighting Equipment Leaves Farms and Rural Communities at Mercy of Flames.

One-Third of Fires Come From Preventable Causes, While as Many More are From Causes Partly Preventable—Greater Individual Responsibility Is Needed.

Farm fires cost about $20,000,000 a year—$18,166,710 in 1918. Of the fires that year 33 per cent were from causes classed as preventable, 37 per cent from partly preventable causes, and 30 per cent unknown but believed to have been largely preventable. With inadequate fire-fighting equipment on farms, fires are hard to control. Prevention is the best way to deal with them.

Defective chimneys and flues took toll to the extent of $1,962,031; sparks on roofs, $1,181,171; careless use of matches by smokers and others, $1,071,987; petroleum and its products, $732,067; and stoves, furnaces, boilers, and their pipes, $674,968. The largest item listed as partly preventable is lightning, $3,933,950.

Inspect the Premises Frequently.

The Department of Agriculture advises a frequent looking over of the premises to see that the buildings are in the best practicable shape to prevent and resist fire, that inflammable rubbish is cleared away, and that habits of safety be instilled in the handling of matches, lamps, stoves, and kerosene and gasoline.

Gasoline has come to play such an important part in farm life that special care should be taken to see that it is not stored in inflammable buildings and is never opened in the presence of uncovered flame. If lanterns must be used in barns, they should be kept in good condition, set or hung in a safe place, and never filled or lighted in the barn. Kerosene lamps should be examined to see that the burners are in good condition and should never be left where they may be upset. Kerosene and gasoline

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receptacles should be kept apart and should be so different as to avoid possibility of a mistake.

Numerous disastrous fires are caused by thrashing machines, both by scattered sparks and embers and by dust explosions in the separators. All smokestacks should have spark arresters, and the ground around the boiler should be kept clear and wet down if necessary. Grain-dust explosions are largely preventable. The department has made exhaustive studies of the subject and is prepared to recommend adequate safeguards.

Serious losses are caused by sparks from locomotives, which ignite dry wooden shingle roofs and start many fires in straw, stubble, and grass during dry seasons. If a railroad runs through the farm it will pay to plow a few furrows along the right of way as a fire-break.

Never Smoke in Barn or Garage.

Ordinary friction matches should be kept in safe receptacles, away from children, and never carried loose. Smoking in barns and garages never should be permitted. Fire marshals of Western States report greater fire losses in grain and straw the past season from carelessly thrown matches, engine sparks, and automobile and tractor backfire than ever before.

Buildings may be made safer by seeing that the chimneys are without cracks and free of soot, which may take fire and scatter sparks on dry roofs. Flues which may become hot should be covered with asbestos and any near-by walls and ceilings protected. There should be a sheet of metal under every stove.

Out of all the losses by lightning not one was on a building protected by lightning rods. It is now definitely known that lightning rods afford protection. If installed intelligently they reduce the risk from lightning almost to the vanishing point.

Precautionary measures will do much to cut down a loss that takes millions of dollars out of the possession of rural Americans every year and leaves nothing in its place. Prevention is better than regret.

NEW LIST OF FORESTRY PUBLICATIONS.

A revised list of Government publications relating to forestry, tree planting, wood tests, and lumber industries has been issued—Price List 43, 14th Edition—and may be obtained free of charge upon application to the Division of Publications, Department of Agriculture, Washington, D. C.

HONOR FAMOUS MORGAN HORSE ON CENTENARY BY STATUE

Unusual Function Takes Place at Department's Morgan Horse Farm at Middlebury, Vt.

Representing a Typical Morgan It Is Expected Statue Will Be a Permanent Standard of the Breed — Founder of Famous Family Traces to Arab Stock.

Justin Morgan, progenitor of the famous breed of Morgan horses, which made farm animal history during the last century, was honored on the centenary of his death, October 1, as very few horses ever have been honored. A statue of a representative Morgan horse was presented to the United States Department of Agriculture at the department's Morgan horse farm, Middlebury, Vt., by the Morgan Horse Club.

Place Statue in Commanding Position.

The statue, which cost $18,000, is by Frederick H. Roth, of Englewood, N. J., one of the foremost animal sculptors of the world. It is of bronze, one-fourth oversize, and stands on a pedestal of Vermont granite in front of the barn of the breeding farm, near the top of a beautiful sloping lawn, about 250 yards from the highway and 50 yards from the circular driveway of the grounds.

To get the type correctly, Mr. Roth studied all the literature of the breed, examined old prints, inspected modern representatives of the type, and interviewed dozens of American Morgan horse breeders. It is expected that the statue will stand as a permanent standard of the breed.

The presentation speech was made by E. A. Darling, of East Burke, Vt., president of the Morgan Horse Club, and the statue was accepted by Dr. John R. Mohler, Chief of the Bureau of Animal Industry of the Department of Agriculture. It was unveiled by Miss Elizabeth G. Stillman, daughter of C. C. Stillman, of New York, secretary of the club.

Justin Morgan, founder of the famous family, was the property of a Vermont breeder by that name, and was foaled in 1789. He was by True Briton, by Imported Traveler by Morton's Traveler, which traces in near and direct lines to Arab stock. From the line descended a number of famous trotters of the last century, but the popularity of the family was based chiefly on the endurance, beauty, and style of its members.

In recent years the race became scattered and nearly extinct, but has been largely restored to its original form through the efforts of Dr. Mohler and associates in the Department of Agriculture.

In accepting the statue, Dr. Mohler said:

"Members of the Morgan Horse Club and friends:

"Few horses have been honored as the horse which stands on this pedestal has been honored. Nor is it a transient impulse that has led to this beautiful tribute. Within the span of a hundred years many things are forgotten. Human life and human memory are necessarily crowded with events that demand thought and attention. Yet here in bronze is a creature whose service to mankind has won for him human esteem that has continued through a century. It was an esteem so sincere that intervening generations have accepted it, nourished it, and passed it on to us as an inheritance.

"In this statue of Justin Morgan, progenitor of the breed that bears his name, we have the expression of a glowing zeal, a desire to go on, to build, and to beautify. The sculptor's art has given us a Justin Morgan of enduring bronze. But there is also another Justin Morgan, a horse of flesh and bone and blood. In a material sense, and from a lay standpoint, that horse died a century ago. But as horse lovers and breeders of living creatures you know that the great sire whom we honor to-day still lives wherever Morgan horses are bred.

"Definite purpose, vision, cooperation, and skill—these attributes combined in a permanent organization like the Morgan Horse Club virtually guarantee the immorality of its notable sires and dams as expressed through their progeny.

"Within the century that has just passed our national development has been unusually rapid in engineering, mechanics, and related sciences. This has been true chiefly because engineering has been the life study and life work of thousands and thousands of persons. Opportunities were plentiful, the field was large, and the results attained were inevitable. Our private and public works, inventions, and industrial prominence in world affairs are ample evidence.

"Yet, judged in the light of true public service, which is the final test of an achievement, the work of developing a fine type of live stock is fully as noteworthy as that of completing a fine piece of engineering.

"Human aims and preferences, of course, are diverse, for which let us be thankful. It means more fruits of life to enjoy, even though we have not personally grown them. Besides, it leaves a wider range for initiative in whatever field anyone selects for his own work. But what satisfaction can any man or

woman enjoy that surpasses the development and perfection of useful living creatures, embodying beauty, grace, and strength?

"The work of a breeder has a scope which overflows the limits of ordinary professions. Members of the Morgan Horse Club are at once engineers in combining weight, speed, and balance; sculptors in molding future form, conformation, and style; historians in the study of traditions and records; and finally, philanthropists in presenting the statue of Justin Morgan, which many may study and enjoy. In behalf of the United States Department of Agriculture, I receive this beautiful tribute and gift. Though you have presented it to the department, I am confident that you desire the public to share in the benefits which it is capable of giving. The department, therefore, will be its custodian, faithful to the trust which you have shown. But just as Morgan blood has permeated the horse stock of the country, so let us be liberal in extending the educational influence of this horse of bronze. It is here for visitors to see, to study, and to enjoy. It is here also for the artist to paint and the camera to reproduce for the benefit of those who can not come to this spot. Members of the Morgan Horse Club, I accept your generous gift and confidently hope that the Justin Morgan of bronze may ably supplement the achievements of the other Justin Morgan who lived a century ago.

MORE EFFICIENT USE URGED OF CARS TO MEET SHORTAGE

To help meet a need for 20,000 additional fruit and vegetable refrigerator cars to move the large volume of perishable farm crops now ready for market, the United States Department of Agriculture urges shippers, carriers, and receivers to make the most efficient use of all refrigerator cars and equipment. Investigations by the Bureau of Markets and Crop Estimates of the department show that many receivers are holding the refrigerator cars as cold-storage warehouses instead of unloading them promptly and permitting their return movement to producing sections. The result is that there are thousands of idle refrigerator cars at a time when railroads are finding it particularly difficult to provide sufficient shipping space for perishable products.

The situation is a serious one, the department says, not only for the railroads and shippers but to the economic welfare of the Nation. Perishable crops must be moved quickly. The slightest interruption in the flow of such products to market may easily result in enormous losses through decay, which would mean a smaller food supply.

Extension of Corn-Borer Quarantine the Subject of Deep Consideration

A formal hearing to consider further steps necessary to prevent the spread of the European corn borer, which now threatens to invade the corn belt, was held at Washington, D. C., October 11 by the Federal Horticultural Board of the United States Department of Agriculture. Federal quarantines against the pest now exist in the States of New Hampshire, Massachusetts, New York, and Pennsylvania. Reports of field investigations already indicate a very rapid spread of the borer during the present season, with new infestations in northwestern Pennsylvania and in northern Ohio, and the survey is still incomplete.

The insect is now so widely dispersed that it is necessary to consider the adoption of regional quarantines or, as an alternative plan, the complete abandonment of all quarantine action. It is an open question whether the protection of noninfested areas that can be secured through quarantine action from now on will justify the expense of enforcement and the interference with commerce.

May Reshape the Board's Policy.

The hearing will take up this whole question, which may result in a reshaping of the world's policy in combating the spread of the pest. It will cover the application of any possible quarantine to corn and broom corn, including all parts of the stalk; sudan grass, celery, green beans in the pod, beets with tops, spinach, rhubarb, oat and rye straw as such or when used as packing, cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, and hollyhock; also cut flowers or entire plants of gladiolus and dahlia, except the bulbs without stems, and other herbaceous plants likely to carry the pest to new regions.

In giving notice of the date and place of the hearing, the official call said:

"The Secretary of Agriculture has information that the European corn borer (*Pyrausta nubilalis* Hubn.), a dangerous insect not heretofore widely prevalent or distributed within and throughout the United States and on account of which Notice of Quarantine No. 43, which became effective March 29, 1920, quarantining the States of Massachusetts, New Hampshire, New York, and Pennsylvania, was issued, is now known to occur also in Maine and Ohio.

"The European corn borer attacks corn and broom corn (including all parts of the stalk), and breeds in and may be transported by Sudan grass, celery, green beans in the pod, beets with tops, spinach, rhubarb, oat and rye straw as such or when used as packing, cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, and hollyhock; also cut flowers or entire plants of gladiolus and dahlia, except the bulbs thereof without stems, and many other herbaceous plants.

"It seems advisable therefore at this time to consider the establishment of a quarantine extending from Lake Michigan southward along the western border of Indiana to the Ohio River and thence eastward along the Ohio and Potomac Rivers or some other line across the northeastern States, in accordance with the plant quarantine act of August 20, 1912 (37 Stat., 315), as amended by the act of Congress approved March 4, 1917 (39 Stat., 1134, 1165), and of restricting or prohibiting the movement from these States or from any infested districts determined therein of corn and broom corn (including all parts of the stalk), Sudan grass, celery, green beans in the pod, beets with tops, spinach, rhubarb, oat and rye straw as such or when used as packing, cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, and hollyhock; also cut flowers or entire plants of gladiolus and dahlia, except the bulbs thereof without stems, and other herbaceous plants.

FIELD STATION WILL ASSIST NEBRASKA POTATO GROWERS

The temporary field station opened at Alliance, Nebr., August 25, is among the first marketing field stations established to assist producers and others in marketing the potato crop of western Nebraska. The office will operate during the heavy shipping season or until about November 15. During this period daily reports will be issued showing primary destinations, shipments for the country by States, shipping point conditions, and prices in the six important producing sections, and car-lot quotations at Kansas City, St. Louis, Chicago, and Omaha. The station is one of many established by the Bureau of Markets and Crop Estimates of the United States Department of Agriculture at various important producing sections throughout the country during the shipping season. Through the daily reports issued at the stations, producers and shippers are able to market their crops to better advantage.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

ORGANIZE ADMINISTRATION FOR PACKERS AND STOCKYARDS ACT

The newly created unit within the Department of Agriculture to administer the packers and stockyards act has been officially designated the Packers and Stockyards Administration. The work of the organization will be handled from the Secretary's Office under the direct supervision of Chester Morrill, Assistant to the Secretary.

There are about 70 stockyards in almost as many cities which are subject to the new law's provisions. At the present time the administration is collecting information necessary to enable it to designate the stockyard companies that will come under the jurisdiction of the department, and at the same time is compiling the lists of commission men and others who are subject to the law's provisions. Announcements will be made from time to time of the various stockyard companies whose operations come within the scope of the act.

CHANGES OF TEMPERATURE CURL CONCRETE ROADS

That the edges of concrete roads curl up and down in response to changes in temperature is the discovery recently made by the Bureau of Public Roads of the United States Department of Agriculture in the course of experiments at the department's experimental farm at Arlington, Va.

Curling is caused by the unequal expansion and contraction of the upper and lower sides of the concrete slab under the influence of heat. It has been observed during the middle of the day when the surface of the road becomes hot it expands more than the cooler underside and causes the sides to move downward. At night when the surface is cool the contraction causes the edges to rise slightly. The extreme movement may be as much as one-tenth of an inch.

While the warping of the concrete is not in itself detrimental to the road, it may lead to failure of the surface under the wheels of vehicles which travel over it when parts of it are not resting on the ground.

LIVE-STOCK IMPORTS SHOW RETURN TO PREWAR NUMBERS

Imports of farm live stock are beginning to show totals similar to those that prevailed previous to the World War. During the last fiscal year the United States Department of Agriculture reports that 3,728 cattle, 507 sheep, 101 swine, 61 goats, and other animals, including those for use in zoos, circuses, and for exhibition purposes, in addition to reindeer and foxes, were imported into the United States after being properly inspected and held in quarantine.

It is especially noteworthy that 29,057 quail were imported from Mexico for restocking wood lots, forests, and other timbered areas. The total number of animals which were imported and inspected but not quarantined consisted of 331,381 cattle, 158,980 sheep, 1,281 swine, 3,311 goats, 13,173 horses, and 1,765 other animals for use in zoological gardens, circuses and vaudeville, fairs, and shows.

DROUGHTY WEATHER CONDITIONS DUE TO ABNORMAL PRESSURE

According to the Weather Bureau of the United States Department of Agriculture the abnormal summer of the current year was due to important changes in the distribution of atmospheric pressure over the globe in consequence of which the usual seasonal interchange of air between equatorial and polar regions was seriously disarranged. Two events stand out prominently in this connection:

First, the mild winter of 1920–21 with its very light snowfall and a much decreased thickness of ice in lakes and streams. An unusually warm February removed practically all of the snow cover in the United States and even in the northwestern Canadian Provinces by March 1; thereafter in that month the solar heat that would ordinarily be expended in melting snow and ice was devoted to warming the soil and the atmosphere.

The second event, and it is spoken of with less certainty than the first, was an increase in the height of the barometer over those parts of the Atlantic and the Pacific Oceans commonly known as regions of "semipermanent high pressure." In other words, the level of the barometer over parts of the oceans was higher than usual; the effect of this rearrangement of pressure was to change the course of rainstorms, which usually pass from west to east along the northern boundary, to higher latitudes, viz, central and northern Canada. The result has been a season so dry that yields of some crops have been seriously curtailed.

MANY BONDED WAREHOUSES SEEK GOVERNMENT LICENSES

A new record was established in the licensing of bonded warehouses during the week ending September 10 by the Bureau of Markets and Crop Estimates of the United States Department of Agriculture, which is charged with administering the warehouse act. Licenses were issued to 31 cotton and 68 grain warehouses.

According to officials of the department, applications for licenses are coming in steadily, with a particularly heavy demand from the large grain elevator companies of the Northwest. It is expected that in the near future licenses will be issued to 118 additional grain warehouses. In these cases, inspections have been made, the necessary bonds filed, and all other needed papers furnished. Nearly all of the warehouses are in the grain growing areas of the Northwest.

In addition, the issuance of licenses to 15 grain warehouses in Washington and Idaho and 10 in Colorado are being considered. Inspections are being made and the applications of the warehousemen are being investigated.

Since April of this year an awakened interest in the Federal licensing system has been evident among warehousemen and many applications from warehousemen who desire to avail themselves of the benefits of the act have been received. Licenses have been issued during these few months covering warehouses with greater combined capacity than the combined capacities of all warehouses licensed during the previous four and a half years since the system was established.

Quarantine Against Pink Bollworm Now Includes State of New Mexico

A widening of the Federal quarantine against the pink bollworm to include the State of New Mexico is announced by the Federal Horticultural Board of the United States Department of Agriculture. This action resulted from the finding of infestations of the cotton pest in this State, which made necessary a revision of the original quarantine covering Texas and Louisiana, where a stubborn fight to check the spread of the insect has been carried on for some time.

Move Cotton Under Rigid Regulations.

The new order now issued by the board defines certain areas known to be infested by the pink bollworm, and other districts in the several States quarantined, from which the movement of cotton and its products to other States will be subject to regulation by the Federal Government. Rigid regulations governing the interstate movement of cotton and other articles likely to carry the pest to other States are provided.

The interstate movement of seed cotton and the stalk and other parts of the cotton plant is prohibited. Cotton lint, linters, gin waste, and all other forms of cotton lint, hulls, cake, meal, and bagging and other containers which have been used in connection with such articles, and also railway cars, boats, and other vehicles which have been used in conveying cotton and cotton products grown in the regulated or infested areas, or which are fouled with such products, hay and other farm products, farm household goods and farm equipment, will be allowed to move in interstate commerce only under permit issued by the Secretary of Agriculture and upon compliance with conditions to be prescribed in the permit.

The interstate movement of cotton seed grown in these areas will be allowed only under permit issued by the Secretary of Agriculture and upon compliance with certain conditions.

Copies of the new order, known as Notice of Quarantine No. 52, may be had upon application to the United States Department of Agriculture, Washington, D. C.

AGRICULTURAL CHEMISTS WILL HOLD MEETING IN WASHINGTON

About 250 of the leading chemists connected with official agricultural and control work in the United States are expected to attend the thirty-eighth annual convention of the Association of Official Agricultural Chemists, which will be held at the Washington Hotel, Washington, D. C., October 24 to 26.

The association has for its objects, first, to secure uniformity and accuracy in the methods, results, and modes of statements of analyses of fertilizers, soils, cattle feeds, dairy products, human foods, medicinal plants, drugs, and other materials connected with the agricultural industry and food and drug regulation; and second, to discuss matters of interest to agricultural and control chemists.

More than 50 scientific and technical papers will be presented at the convention. Addresses will be made by Henry C. Wallace, Secretary of Agriculture; Dr. Harvey W. Wiley, honorary president of the association; and Senator E. F. Ladd, of North Dakota, past president of the association, who is a professional chemist and has been for a number of years president of the North Dakota Agricultural College and State food commissioner.

Prof. W. F. Hand, of the Mississippi Agricultural College, is president of the association, and Dr. R. W. Balcom, of the United States Department of Agriculture, secretary.

INSPECTION OF FRUITS AND VEGETABLES IN 31 CITIES

Fifty-three food products inspectors for the Bureau of Markets and Crop Estimates, United States Department of Agriculture, officially inspect and certify in 31 cities of the United States, from Boston to Los Angeles, the quality and condition of interstate shipments of fruits and vegetables arriving at market centers. The object of the service is to provide shippers, carriers, and receivers with an accurate report from a disinterested agency of the true quality and condition of the products when received.

Nearly 24,000 carloads of fruits and vegetables were inspected during the fiscal year ended July 1, 1921. The service is rendered upon request from any one of the parties concerned in the market transaction, a small fee being charged for the inspection.

The number of inspectors assigned to the various cities is in proportion to the quantity of produce received for which inspection is requested. The complete field organization is composed of 53 men engaged in making daily inspections; 8 supervising inspectors; 3 pathologists who study the diseases affecting fruits and vegetables in transit and storage, and 2 specialists engaged upon problems connected with the standardization of grades for fruits and vegetables. At 7 cities where heavy purchases are made for the Navy, inspectors have been detailed in response to requests from the Navy Department to inspect the fruits and vegetables delivered to the Government on contract.

RABBIT OPEN SEASON BEGINS OCTOBER 15 IN NEW YORK

The open season fixed by New York law for cottontail rabbits and varying hares will be from October 15 to March 1, inclusive, instead of beginning on October 1, as stated in Farmers' Bulletin 1235—Game Laws for 1921—according to an announcement by the United States Department of Agriculture. By order of the New York Conservation Commission the hunting season for cottontails may be further restricted, and this has been done in several counties and on Long Island.

The statement in the bulletin that the open season for deer in the Adirondack region is from October 15 to November 15 should also be modified, as a special open season on these animals has been prescribed in the towns of Jackson, Salem, and White Creek, in Washington County, from November 7 to 19, inclusive. The incomplete information in the department's bulletin resulted from the fact that notice of a late amendment by the State legislature had not been received at the time the bulletin went to press.

CORN-BELT FEEDER HOGS COME FROM COTTON STATES

The Southern States, particularly Mississippi, have gained considerable popularity as a source of feeder hogs for the corn-belt States, reports the United States Department of Agriculture. Well-bred boars are now being used extensively in the hog-producing centers of the South, and satisfactory feeding shoats are now being produced in large numbers. In some areas cheap pork is made by the use of sweet-potato cannery wastes, these materials having valuable fattening properties. In large peanut-growing districts good gains are put on at a comparatively low cost.

Profit in Sugar Beets Proves Greater on Farms Where Large Acreage Is Grown

The cost per ton of producing sugar beets on irrigated land in Utah and Idaho is relatively lower on the larger individual acreages and on farms where concentrated attention is paid to increasing the yield per acre. This is shown by investigations recently made by the United States Department of Agriculture. The cost of better cultivation was found to be more than made up by the larger crops.

A definite rotation of crops also was found to be profitable, and the value of beet tops for silage was shown to be an increasingly regarded factor in offsetting the cost of production. These conclusions are published in a new department bulletin, No. 963, "Cost of Producing Sugar Beets in Utah and Idaho, 1918–19."

Rotation Reduces Damage From Insects.

Rotation is recommended to the extent of substituting a different crop once in several years. Many farmers in the sections investigated continue to raise sugar beets on the same fields year after year, declaring that the yield is better the fifth year than the second. The department's observations, however, show that land yields less after continued cultivation to one crop, and also is more susceptible to damage by insects and disease.

Data were obtained on 220 farms in 5 of the principal sugar-beet producing sections of the two States. Seventy-three per cent of the growers produced beets at a cost of $11 a ton or less; the average cost was $9.49 a ton, but nearly half of the farms exceeded this rate. The cost ranged widely—from $5 a ton in two cases to $35 a ton in the case of one grower whose land gave him only 3 tons per acre. Labor constituted 69 to 75 per cent of all costs exclusive of land rent; materials 7 to 10 per cent. The beets sold for about $10 a ton and in some cases the cost ran above the receipts; but as land rent is taken into account, and in many cases the work was done by the operator, this did not involve an actual money loss, but merely an income below the fair estimate for labor and use of land.

A sample of the distribution of costs may be based on 44 farms in Lehi, Utah, showing that operator's labor cost $61.88 per acre; contract labor, $10; horse labor, $23.65; manure, seed, and water, $13.98; taxes and insurance, $1.92; overhead, $10.95; and the average yield was 16.1 tons per acre. With land at $200 an acre, these beets paid 17.7 per cent on the value of the land.

BRIDGES BUILT FOR WAR USE PUT TO PEACE-TIME SERVICE

Sectional steel bridges, easily handled and ready for instant use, which were constructed during the war for use in France, have been turned over by the War Department to the Bureau of Public Roads, United States Department of Agriculture, and now are finding profitable peace-time duty on roadways in the national forests, where they are used to span streams in connection with roads built by the bureau in forest areas.

The sections were built in two sizes, one 17 feet 7½ inches long, intended for the ends of the bridge; the other 11 feet 3 inches long and designed for intermediate sections. By combining the two kinds, bridges varying from 35 to 91 feet long can be built. The height of the trusses is 5 feet 11 inches and the bridges when erected have a roadway 11 feet wide.

Along with the bridges there have been turned over to the department great quantities of other material, including motor trucks and automobiles for use in road construction. The bulk of the material has been distributed by the department to the various States to many of which it has been the means of preventing otherwise inevitable deterioration of their roads during the period of high prices.

FEED REQUIRED TO MAKE BEEF ON CORN-BELT FARMS

Data gathered by the United States Department of Agriculture regarding the daily gain and the amount of feed and pasture consumed by 34.934 steers fattened on Corn-Belt farms during the last two winters, are of value to beef producers as an indication of how much feed is required on the average Corn-Belt farm to produce 100 pounds of gain.

The average weight of all the cattle at the start of the feeding period was 786 pounds, while the final weight was 1,070 pounds, the gain amounting to 284 pounds in a period of 174 days. The average quantity of feed consumed for 100 pounds of gain was 680 pounds of grain, 62 pounds of commercial concentrates, 391 pounds of dry roughage such as hay and corn fodder, 863 pounds of silage, and the equivalent of 20 days of pasturage.

In addition to these cooperative feeding trials with cattlemen in Indiana, Illinois, Iowa, Nebraska, and Missouri, the United States Department of Agriculture is conducting investigations in southwestern Wisconsin to determine the costs and amounts of feed required to fatten cattle on grass, with and without a supplement, and of the feed required to maintain a breeding herd of beef cattle for one year, and to raise calves from weaning time to yearlings.

TICK QUARANTINE LIFTED FOR FLORIDA FAIR CATTLE

Special concessions have been made by the United States Department of Agriculture so that cattle may be moved interstate from points outside the quarantined cattle-tick area to the Florida State Fair at Jacksonville. These cattle will be considered as noninfectious without dipping, and subsequent to the fair will be shipped to points outside the quarantined area under the restrictions given below:

Such cattle shall be shipped by rail to points of exposition and shall not be unloaded in the quarantined area elsewhere than at such point. Separate, clean, and disinfected chutes and other facilities shall be provided for the exclusive unloading and loading of such cattle at the point of exposition. These cattle shall be hauled in clean and disinfected wagons direct from the cars in which they arrive at the point of exposition to the fair grounds, and later from the fair grounds direct to the cars in which they are reshipped. A segregated section of the Florida State Fair grounds of sufficient area shall be set apart and disinfected under the supervision of a representative of the United States Department of Agriculture for the stabling, handling, and exposition of such cattle.

In order that the hay, straw, and similar materials used for feed and bedding by such cattle during the time they are within the quarantined area shall be noninfectious, all such materials must come from points outside the quarantined area and be shipped therefrom in clean, disinfected cars and be so handled at points of exposition that they shall not become infectious. Such cattle shall not be returned from the point of exposition to points outside the quarantined area except in clean and disinfected cars, nor unless accompanied by a certificate issued by a representative of the United States Department of Agriculture showing that such cattle have had no opportunity to become infested with the cattle tick.

Cover-Crop Campaign Pushed in Kentucky With Aim of Increasing Present Acreage

A most interesting comment relative to an article published in the Weekly News Letter of August 24 on the subject of cover crops comes from R. E. Stephenson, Kentucky extension specialist in soils. With the help of the State agricultural college the county agents have been exceedingly active in putting on a State-wide cover crop campaign in Kentucky, endeavoring in some counties to double the present acreage of cover crops, and in others to make the acreage 100 per cent.

Much Land Erosion in State.

Kentucky is a State with a large area of rolling land, Mr. Stephenson explains. It is traversed by many rivers, and soil erosion losses, which are largely preventable, represent a waste greater than all the land taxes combined. It is estimated that the State has 7,663,193 acres of waste land, and nearly the same amount, or 7,280,646 acres, of crop-producing land. Much of the waste land is eroded soil. The remaining area of the State is producing pasture and timber of some description, and, although in many cases these uses may not be highly profitable, this can not be considered waste land. In the entire State at least 2,500,000 acres of land are badly eroded, and approximately 5,000,000 acres more which have been injured to some extent by sheet erosion. Each year nearly 3,000,000 acres of corn, tobacco, and truck yields are ordinarily left bare, subject to eroding and leaching losses.

The use of a special winter cover crop on all land that is ordinarily bare in winter offers the solution for this serious condition. Many fields that have been cleared up would have been more profitable if left with the original timber growth. A still larger area would be much more profitable as grass-producing land than as crop-producing soil. The soil under a sod does not erode, and good pasture is highly profitable.

To stimulate the use of winter cover crops more than 50 county agents, assisted by the extension department of the University of Kentucky, have helped the farmers in their respective counties to select the proper crop to seed. Publicity was secured by the use of posters, hand bills, press articles, and public meetings. Two thousand copies of a cover-crop poster have been distributed.

The crop to be most used throughout the State is rye. In Graves County the agent expects the farmers to sow 2,000 bushels of Rosen rye as a winter cover. In a few counties in the southern section of the State several acres of crimson clover will be seeded either alone or with the rye. Barley and winter oats are used to a limited extent and occasionally vetch will be seeded. Where wheat is grown it serves, of course, as a winter protection.

Green Manure One Object.

In most cases the cover crop, when grown especially for soil protection, will be used also for a green manure next spring. Green manuring is especially important in Kentucky, because there are many soils which are badly run down and low in organic matter. Some of the cover crops will be used also for fall and spring pasture.

PREVENT TUBERCULOUS CATTLE FROM EMBARKING FOR U. S.

During the last fiscal year 1,700 head of cattle were exported from Scotland and the Channel Islands to the United States. The requirements are that all such dairy and beef stock of foreign origin must be tuberculin tested previous to release from quarantine in the United States. To protect the health of the imported cattle the United States Department of Agriculture maintains two special inspectors at London and the Channel Islands to test cattle destined for American ports for evidences of tuberculosis. This is a branch of the quarantine and bovine tuberculosis-eradication work being conducted by the Bureau of Animal Industry. The Federal authorities are utilizing every possible means to prevent the introduction of contagion, to clean up contaminated herds, and to eradicate tuberculous animals from this country.

NEW INVENTION TO MEASURE TRAFFIC EFFECT ON BRIDGES

A new instrument devised by the Bureau of Public Roads of the United States Department of Agriculture measures with scientific precision the effect of every shock and blow delivered by moving vehicles in crossing a bridge. Attached to any part of the bridge structure, this instrument makes a photographic record of the effect of the moving load. The amount of stretching or shortening of the part as a result of the shocks is represented by a fine black line on the photograph.

No blow or shock can be delivered so quickly that the instrument will not record its effect. It has never before been possible to measure the effect of such blows. Engineers have long been able to calculate the effect of standing loads very exactly; but because of their inability to measure the effect of quickly delivered blows or impacts, they have never been able to proportion the various parts of a bridge with absolute assurance. It has been necessary to make a liberal allowance for this unknown quantity. In some cases the allowance has not been sufficient and the bridges have collapsed under moving loads.

Many bridges still in service are probably too weak to withstand safely the sharp blows of swiftly moving vehicles, though they will safely carry the same vehicles at rest or moving at slow speed. The familiar warning posted at the portals of a bridge: "Speed limit on this bridge 8 miles per hour," means that the design of the bridge to which it is attached is not strong enough to allow for impact. In the light of the recent experiments with motor trucks in which it was shown that a swiftly moving motor truck may strike a blow equivalent to seven times its actual weight, it is rather surprising, the department road experts say, that failures have been so few.

It is believed this new measuring instrument will soon do away with uncertainty. The knowledge gained by its use will enable the engineer to design bridges which are sure to hold up under fast-moving vehicles, and to build such bridges without undue waste of material and money.

"CHILD, CENTER OF THE HOME," FEATURED IN N. DAK. STATE FAIR

The effectiveness of "live" demonstration exhibits for fairs was proved at the North Dakota State Fair at Fargo last July, in the space allotted to the home demonstration work of the State agricultural college and the United States Department of Agriculture. Four booths were arranged around the central theme, "The Child, the Center of the Home." Each one emphasized a particular phase of the work for children as the best "farm crop," and showed convincingly how home demonstration activities contribute to the good of the child.

A miniature grocery store booth was very attractive, with its shelves, counter, and scales, and a small boy in cap and

apron acting as storekeeper. The foods displayed were such as should be purchased for children. Accompanying posters explained clearly why certain foods should be selected.

Another booth represented a tiny kitchen and dining room combined. A very little girl was shown at the table, eating a breakfast suitable for a child. Posters again described the proper selection and preparation of foods for children.

The third booth was a bedroom. There was a doll in bed, a bath tub, and suitable conveniences for caring for clothing. Attention was directed to what constituted proper ventilation, and posters also explained the value of rest under hygienic conditions. A clothing booth was made interesting by life-sized dolls, dressed in simple clothes, which were selected from standpoints of economy, health, and beauty. This clothing was made to illustrate the various phases of the clothing work and to show what attractive garments may be made with small expenditure of money.

The exhibits were completed by a large explanatory poster which set forth the value of weighing and measuring children to determine whether they show normal development. All the exhibits were well attended. They were always in charge of one or more of the home demonstration staff, who answered questions, explained home demonstration work, and took names of those who desired bulletins, circulars, or other material sent out from the State office.

The home demonstration department also did all the judging for the women's work at the fair and for the girls' club work.

NORTH CAROLINA FARMERS LEARN TO EQUIP HOG FARMS

The era when "pigs were pigs" is about over in North Carolina, where the farmers are now coming to appreciate the need for better swine for breeding purposes and to realize that improved equipment and facilities make for the health and contentment of the herd. The United States Department of Agriculture has been aiding these farmers by holding 148 demonstrations, which were attended by 10,544 farmers and their families.

In connection with shows and fairs, practical demonstrations were held to illustrate the construction of wire fences, proper methods of stretching wire and bracing posts, demonstrations in the construction of automatic watering devices, self-feeders, colony houses, and general hog-lot equipment. In addition to these activities the usual club work and organization operations were continued under the auspices of the United States Department of Agriculture and State Agricultural College.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended September 28, 1921:

Life History of the Codling Moth in the Grand Valley of Colorado.—By E. H. Siegler, Entomologist, and H. K. Plank, Scientific Assistant, Fruit Insect Investigations, in Cooperation with the Colorado Agricultural Experiment Station. Pp. 119, pls. 7, figs. 36. Contribution from the Bureau of Entomology. (Professional Paper.) September 20, 1921. (Department Bulletin 932.) Price, 25 cents.

Cost of Producing Sugar Beets in Utah and Idaho, 1918–19. By L. A. Moorehouse, Associate Farm Economist, Office of Farm Management and Farm Economics, and S. B. Nuckols, Agriculturist, Sugar Plant Investigations, Bureau of Plant Industry. Pp. 41, figs. 13. Contribution from the Office of Farm Management and Farm Economics. September 21, 1921. (Department Bulletin 963.) Price, 10 cents.

Garden Flea-Hopper in Alfalfa and Its Control. By A. H. Beyer, Scientific Assistant, Cereal and Forage Insect Investigations. Pp. 27, figs. 17. Contribution from the Bureau of Entomology. (Professional Paper.) September 20, 1921. (Department Bulletin 964.) Price, 10 cents.

Sugar Cane in St. Croix. By Longfield Smith, Agronomist in Charge. Pp. 23, pl. 1, figs. 2. September 12, 1921. (Bulletin No. 2. Virgin Islands Agricultural Experiment Station.) Price, 5 cents.

Phosphorus in Fertilizer. By William H. Waggaman, Bureau of Soils. Pp. 7, figs. 3. (Separate 840, Yearbook, 1920.) Price, 5 cents.

Farm Help from the Birds.—By W. L. McAtee, Bureau of Biological Survey. Pp. 18, figs. 8. (Separate 843, Yearbook, 1920.) Price, 5 cents.

Helping Landless Farmers to Own Farms. By L. C. Gray, Office of Farm Management and Farm Economics. Pp. 18, figs. 3. (Separate 844, Yearbook, 1920.) Price, 5 cents.

How the Public Forests are Handled. By Herbert A. Smith, Forest Service. Pp. 22, figs. 12. (Separate 847, Yearbook, 1920.) Price, 5 cents.

The March of Standardization. By Harold W. Sampson, Bureau of Markets. Pp. 10, figs. 4. (Separate 850, Yearbook, 1920.) Price, 5 cents.

Milk for Midshipmen. By Ernest Kelly, Bureau of Animal Industry. Pp. 8, figs. 6. (Separate 857, Yearbook, 1920.) Price, 5 cents.

Food for Farm Families. By Helen W. Atwater, States Relations Service. Pp. 14. (Separate 858, Yearbook, 1920.) Price, 5 cents.

Boys' and Girls' Clubs Enrich Country Life. By C. B. Smith and George E. Farrell, States Relations Service. Pp. 10, figs. 5. (Separate 859, Yearbook, 1920.) Price, 5 cents.

Soil Survey of Dakota County, Nebraska. By F. A. Hayes and H. L. Bedell. Pp. 42, fig. 1, map. (F. O. Soils, 1919.) Price, 15 cents.

Bureau of Chemistry. Supplement 117. (N. J. 9301–9350.) Pp. 223–258. September 24, 1921. Price, 10 cents.

Federal Horticultural Board No. 70. Pp. 1–94. January–June, 1921. With contents. September 23, 1921. Price, 5 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the superintendent of documents direct, not to the Department of Agriculture.

WALLACE APPOINTS COMMITTEE TO CONSIDER LAND PROBLEMS

(*Continued from page 1.*)

quality that heretofore have been rejected as unsuitable — whether they should be brought under the plow or reserved temporarily or permanently for forests or grazing.

The rate of expansion of our national area also is an important factor for consideration. Despite the impending demand for a large expansion of the land basis of American agriculture, there are many reasons why we should consider most carefully before encouraging any considerable expansion of land under cultivation during, say, the next three years. The shrinkage in the volume of farm exports, the many indications of a probable increase of agricultural imports into this country, and the present depression in developed agricultural areas raise a serious question as to the wisdom of an immediate policy of stimulating the expansion of farm acreage.

BEEF FROM VELVET BEANS.

The United States Department of Agriculture has conducted a steer-fattening experiment in Mississippi which shows that velvet beans are well adapted for use in making beef. Feeding mixtures of silage, dry velvet beans and cotton seed were compared with combinations of silage and dry velvet beans, and silage and soaked velvet beans. The mixture of silage and soaked velvet beans resulted in the most economical and profitable production of beef, while the mixture of silage, dry velvet beans and cottonseed meal proved more satisfactory than the combination of silage and dry velvet beans.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1921

[Prompt notice of change of address is requested. Both old address and new address should be given.]

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. IX. OCTOBER 19, 1921 No. 12

KANRED BEST VARIETY FOR HARD WINTER WHEAT BELT

Outyields Other Popular Sorts and Compares Favorably With Them in Milling and Baking Qualities.

A Bearded Variety Especially Adapted to Large Sections of Kansas, Nebraska, Colorado, Wyoming, and South Dakota, Where it Should Replace Turkey and Kharkof.

Kanred is a wheat which is resistant to prevalent forms of leaf and stem rust, is less liable to winter killing than the Turkey or Kharkof, and matures from one to four days sooner than those varieties, which sometimes means escape from bad weather conditions. It outyields the varieties named in the principal hard winter wheat section by from 3 to 5 bushels per acre. The variety was developed from a single head of Crimean wheat selected at the Kansas Agricultural Experiment Station 10 years ago, from which source it is estimated that 2,000,000 acres were harvested in 1921.

New Department Circular on Kanred.

"Kanred Wheat" is the title of Department Circular 194, just issued by the United States Department of Agriculture. Kanred is a hard red winter wheat very similar to Turkey. It is bearded and has hairless white chaff. The superior yields of the Kanred variety in northern and northwestern Kansas, eastern Colorado, southwestern Wyoming, and in Nebraska and South Dakota appear to have been due largely to its resistance to rust and to winter killing.

Kanred wheat may be grown with success wherever other hard winter wheats are grown and should partly replace the Turkey and Kharkof varieties now widely grown. It shows no special advantage in the northern Great Plains and the Pacific Northwest. It can not compete with the soft winter wheat varieties grown on the lower lands and the richer soils of eastern Kansas or the eastern United States and is not winter hardy enough to replace spring wheat in the northern Great Plains. Wherever Turkey or Kharkof hard winter wheats are grown, however, the Kanred can be grown with equal chances of success.

Certification of Seed Essential.

In milling and baking experiments Kanred has compared favorably with other hard red winter wheats. For successful growing pure seed is necessary, and because of similarity of the seed to other varieties certification has been found essential. This certification is made by the Kansas Crop Improvement Association with the cooperation of the Kansas Agricultural Experiment Station.

Pugsley Becomes Ass't Secretary; Ball, Director of Scientific Work

Charles W. Pugsley, of Lincoln, Nebr., editor of the Nebraska Farmer, took the oath of office as Assistant Secretary of Agriculture September 30, 1921, and his appointment was effective October 1. At the same time Elmer D. Ball, who has been Assistant Secretary since June 12, 1920, entered upon his duties as Director of Scientific Work.

For the present Assistant Secretary Pugsley will be especially charged with the general supervision of the department's extension and publication work, together with such other duties as are required by law or may be assigned from time to time.

As Director of Scientific Work, Dr. Ball will have general supervision of the scientific research work and will advise with the Secretary and the bureau chiefs with respect to the scientific personnel, plans, and project outlines of scientific work, coordination and correlation of scientific work that it may become more effective in studying national problems of agriculture involving more than one field of effort, selection of scientific manuscripts for publication, and other subjects to be determined later.

DEPARTMENT OFFICIALS STUDY MARKETING GARLICKY WHEAT

Suitable Rotation of Crops and Good Cultural Practices Will Reduce Garlic in Cultivated Fields.

Presence of Wild Onion Bulblets Increases Risks of Spoilage, Results in Decreased Milling Output, and Lowers Value of Resultant Flour.

Because the presence of garlic or wild onion in wheat decreases its market value materially, a special study of the problem of marketing wheat so tainted has been made by the Bureau of Markets and Crop Estimates, United States Department of Agriculture. The purpose of the study was to ascertain how such wheat is purchased from producers, as regards grades and price at the primary grain markets of Maryland, and the effect, if any, on the producer.

The average garlic content of 47 samples of Maryland wheat taken from wagons, elevators, bins, and mills was 40 bulblets to a pound. Millers were unanimous in saying that the presence of garlic greatly decreased the milling value for a number of reasons, such as the greater risks from spoilage, the extra cleaning and preparation required for milling, the lower flour yields, the greater cost of manufacturing, and the lower market value of the resultant flour.

Bulblets Vary in Size.

Garlic bulblets range in size from that of a kernel of wheat to that of a pea seed. The specific gravity of the bulblets is less than that of the wheat kernel, though it varies with the season and with the weather conditions. The bulblets are heaviest at harvest time, as later the moisture evaporates and they lose weight. The greater risk of spoilage in garlicky wheat is due to the fermentative or germinative action in wheat started by the absorption of moisture from the garlic bulblets. As this is a slow process,

the danger of spoilage is slight where grain is handled or moved frequently.

None of the special cleaners for removing the garlic is entirely satisfactory. Some of them remove too small a part of the garlic, and some remove too much wheat when removing the garlic. It was noted that the condition of the bulblets had more of an effect on the resulting odor than the number of bulblets. Those full of juice contaminate flour more readily than drier ones.

One of the serious results of the presence of garlic in wheat is the clogging of the corrugations of the rolls in the mills so that they can not function properly. Under such conditions it is sometimes necessary for the mills to shut down two or three times a day in order to scrape and wash the rolls. This slows up the work, reduces the output, and increases the cost of production per unit. There is little demand for flour made from garlicky wheat, therefore mills have to discount it when it is sold from 25 cents to $1 a barrel. It is used chiefly for blending with sweet flours.

The difficulties of removing garlic bulblets from wheat suggest the importance of its eradication from the fields whenever this is possible. Wild garlic forms two kinds of underground bulbs—soft-shelled and hard-shelled. This fact has been used as a basis for the recommendations of the Department of Agriculture for its eradication. The soft-shelled bulbs germinate in the late summer or fall, while the hard-shelled bulbs form new plants the following season. Late fall plowing is recommended to destroy the plants from the soft-shelled bulbs before they have had a chance to form new bulbs.

Should Be Eradicated from Fields.

The field should be planted to a tilled crop the following spring. Any crop so planted should be carefully tilled, preferably with the knife or sweep type of implement. This will destroy the plants arising from the hard-shelled bulbs. As the hard bulbs last two years it will be necessary to repeat fall plowing followed by another tilled crop. Rye may be sown after the late fall plowing and turned under for green manure the following spring. Great care should also be used in buying and selecting wheat for seed to make sure that it is not contaminated.

Many farmers make a practice of throwing weeds of various sorts out of the bundles at the time of shocking wheat. It has been found that if the entire product of the field is removed from the land at harvest time, great care taken in planting only seed that is free from garlic and other weeds, and proper crop rotation practiced considerable progress in garlic eradication can be made within a few years. It is believed by department officials that if this is done it will be possible in time to eliminate, or at least greatly reduce, the garlic in the fields.

Speeding Causes Most Motor Accidents—Care Used in Face of Recognized Dangers

A three-months' study of motor accidents on Maryland roads has brought to light the interesting disclosure that a vast majority of the disasters that overtake motorists are brought upon themselves by their own recklessness, and that 90 per cent of them are due to speeding, says a writer in the September issue of Public Roads, published by the Bureau of Public Roads, United States Department of Agriculture.

Few Accidents in Dangerous Places.

"One of the interesting developments [of the investigation]," the journal goes on to say, "is that the largest number of accidents have occurred at the places that have always been considered safe, while the sections which have been commonly regarded as being extremely dangerous are proving to be relatively free from accidents." Where the State highway crosses the Blue Ridge Mountains, in the western part of the State, and grades are steep and curves sharp, there were but eight accidents during three months. On the National Pike, between Baltimore and Frederick, where there are 48 miles of the straightest road in the State, the record for the same time showed 16 accidents, 3 of which were fatal. "And yet," says the publication, "few stretches of highway in the whole road system are so free of any features which might be considered as dangerous."

On the Baltimore-Washington road, with all apparent danger spots removed, the record shows that during the same period there was one accident for every 4 miles of road.

"There seems to be only one answer to account for these hitherto unsuspected conditions," the article says. That answer is:

"Even the less careful motorists drive cautiously in the presence of recognized dangers, such as steep grades, sharp curves, grade crossings, etc., while the absence of such dangerous features gives the driver a sense of security which prompts him to take a chance and yield to the well-nigh universal passion for speed."

Few accidents were due, it was found, to the condition of the roads themselves, and most of those were due to slippery surfaces caused by rains.

TRAFFIC CENSUS WILL RESULT IN BUILDING BETTER ROADS

Thirty thousand motorists who were stopped last month on the Springfield-Hartford road at the Connecticut-Massachusetts State line have contributed valuable information to the Bureau of Public Roads, United States Department of Agriculture, which, when analyzed, will assist the department to determine more rational methods of road design to meet varying traffic needs.

The motorists were counted in the first traffic census to give complete information ever undertaken by the bureau. The work was done in cooperation with State highway departments of Massachusetts and Connecticut and will be duplicated in the near future elsewhere. It was taken between August 16 and 29, covered 140 day hours and 26 night hours, and resulted in accurate records concerning 30,851 vehicles. For passenger cars this information covers type, make, number of passengers, time, direction, starting point, and destination. The State authorities recorded, in addition, license numbers and engine information. The work was handled so expeditiously that the average stop lasted only 15 seconds.

Trucks were stopped somewhat longer—100 seconds for southbound and 37 seconds for northbound vehicles being the average. Truck drivers were asked to give, in addition to the information obtained in the case of passenger cars, capacity, driver's estimate of length and frequency of trip, kinds of loads carried, location of consignor and consignee. Roadside scales, especially placed, took required weight data, and observers ascertained the speed of trucks.

Motorcycles and horse-drawn vehicles also were included in the census. The data thus obtained are being analyzed and will be used, in connection with information obtained from experiments on impact of trucks and effect of impact on pavement, to design better roads.

SUCCESS IN APPLICATION OF U. S. TENTATIVE WOOL GRADES

Trial in Missouri Results in Selling to Boston Firm. 87,000 Pounds on Telegraphic Bid.

Former Haphazard, Inefficient, Wasteful Methods of Handling and Marketing Give Way to Uniform Grading, Better Packing and Pooling of Clip by Many Growers.

Selling wool on the basis of United States tentative wool grades has proved successful in an experiment in Missouri, where 87,000 pounds of wool graded according to tentative Federal wool grades was sold at public auction. The larger part of the wool was purchased on telegraph bid by a Boston firm.

After a three years' study of thousands of wool samples, believed to represent generally accepted commercial grades, two Government officials were sent to Missouri in 1920 to demonstrate to woolgrowers the tentative Federal grades prepared by the Bureau of Markets and Crop Estimates, United States Department of Agriculture. The Missouri growers became convinced that the standardization and grading of the product nearer the farm would do much to relieve the deplorable wool-marketing situation, and in 1921 turned into the pool that had been formed a product uniformly graded as to diameter and length of fiber and freeness of foreign matter. Not only was most of the wool purchased by telegraph, but the prices paid were higher than the average price received for other wool in the same district.

Great Need for Reliable Standards.

For a number of years marketing agencies directly concerned with the wool industry have realized the importance of placing the marketing of wool on a basis to enable wool producers, distributors, and manufacturers to conduct their operations in a more satisfactory and businesslike manner. When a consumer orders a barrel of 10d. nails, he knows precisely the kind of nails he wants and the kind of nails he will get. Tenpenny nails are 10d. nails everywhere.

But in the purchase of raw wool there were no universally recognized grades, and the buyer had to be on the ground and inspect every bag of wool that he bought to avoid paying wool prices for stones, burs, or manure. These practices reacted to the disadvantage of the producer of a good product, for it was necessary to allow for the presence of foreign material, and the careful grower with clean wool was usually penalized along with the careless and the unscrupulous.

The handling and marketing of wool in the field were conducted in most instances in a haphazard, inefficient, and wasteful way. In shearing, the laborer sometimes clipped the wool from the sheep in chunks, no care being taken to obviate second cuts nor to keep the fleece intact. The fleece was then tramped into sacks along with dirt and other foreign matter and the sacks carelessly sewed. No organized central market existed, and with the bulk of American wool produced in the Central and Western States and the manufacturing industries located almost wholly in the north Atlantic seaboard States thousands of dollars had to be spent to send and maintain buyers in the producing sections. This inefficient system inevitably showed a high cost of marketing.

Grades Based on Manufacturers' Needs.

In the hope of inducing better marketing practices the Department of Agriculture interested itself in wool marketing. The department realized that before any improvement could be effected standard grades for wool must be adopted and applied universally, and prepared tentative grades which were submitted to leading wool authorities, including the Association of Wool Manufacturers, for suggestions and criticism. The establishment of the tentative grades was widely announced, and by July, 1920, approximately 100 sets were sent out in response to applications from practically every State in the Union and from every branch of the wool industry. To date 387 sets have been distributed. The grades are based on diameter of fiber only, although suggestions have been made regarding the length of staple for classes within the various grades, which has been found to be most adaptable for the various systems of manufacture.

Eight expert wool classifiers were detailed to conduct wool-grading demonstrations in Maine, New Hampshire, Virginia, Kentucky, Arkansas, and Missouri. Wool centralized by woolgrowers' associations, farm bureaus, and agricultural colleges was graded by these classifiers to demonstrate and test the practicability of the tentative grades. The growers were shown the grades, in what grades their wool belonged, why it fell into those grades, and how to clean and prepare the wool so as to get it into merchantable grades. Demonstrations on the most practicable, efficient, and profitable method of preparing, storing, handling, grading, and marketing wool and the importance of giving due consideration to market conditions at time of sale were conducted in 16 States.

The following year field work was conducted in Illinois, Minnesota, Arkansas, Missouri, North Dakota, Colorado, Utah, Montana, Oregon, California, and New Jersey, and the grading of nearly 1,000,000 pounds of wool was supervised by the department's experts.

Many owners of wool clips who were penalized in 1920 on account of the presence of sisal twine, burs, or seed took precautions this year to see that their product was free from objectionable foreign matter and in excellent condition when received at the concentration point. Also the percentage of untied fleeces is considerably smaller than a year ago, due to the use of the tying box recommended by the department.

Although much improvement has already been effected in handling and marketing wool, many of the inefficient practices that contribute directly to the high marketing costs continue. The achievement of the Missouri woolgrowers as a result of careful handling, grading, and packing is an excellent example of what can be accomplished by the use of proper methods, and, according to wool marketing experts of the department, similar results can be secured by any woolgrower or group of growers.

Practical Suggestions for Growers.

The following suggestions for preparing the fleece for market are offered by the department:

Shear the sheep when the wool is absolutely dry; never when there is any moisture in the fleece.

The sheep should be shorn only on a smooth, dry surface, preferably a planed board flooring; never on the dirt.

Care should be taken to keep the fleece intact. Avoid second cuts, which reduce the average length of the staple.

Clip all tags from each fleece and pack separately. Never permit the tags to remain in the fleece.

Fleeces should be prepared with the flesh side out; never the weather side.

Fold, roll, or use fleece box for preparing the fleece.

Tie each fleece separately. Never tie two fleeces together, nor pack and market untied wool.

Use only enough twine to tie the fleece securely.

Paper or hard glazed surface twine should be used. Never use sisal or binder twine.

Never permit the fleece to come into contact with chaff, hay, dust, or any other foreign material.

(Continued on page 8.)

Weekly News Letter

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MEAT-INSPECTION MOVIE WILL BE SHOWN IN ENGLAND

Meat handlers and consumers in England will soon have an opportunity to see what the Federal inspection mark on American meat products means to them. A copy of the United States Department of Agriculture motion picture, "The Honor of the Little Purple Stamp," has been sent to the United States agricultural trade commissioner in London, and he is to arrange for its exhibition in England, and later in France, Germany, and other countries.

"The Honor of the Little Purple Stamp" shows in complete fashion the work which guarantees freedom from disease for all meat leaving American packing houses and going into interstate or foreign commerce.

FEDERAL FOOD INSPECTORS FIND COFFEE ADULTERANT

A mixture of fine coffee chaff and screenings, which is added by certain coffee grinders and sellers to the lower grades of coffee in portions as high as 25 per cent, has been found by food inspectors, according to a statement by the Bureau of Chemistry, United States Department of Agriculture, which is charged with the enforcement of the Federal food and drugs act.

Examinations of the mixture showed that it consisted of finely ground particles of the coffee bean containing an excessive amount of chaff. It is made up largely of the thin silver skins and other soft parts of the coffee berry, together with the finer particles which result from the steel-cut process.

Coffee chaff and coffee screenings are not coffee, says the Bureau of Chemistry, and mixtures of these with coffee are adulterated and misbranded under the provisions of the food and drugs act, if labeled, sold, or offered for sale as coffee. Appropriate action will be taken in all cases found to be in violation of the law, say the officials.

LOBO, NOTED CATTLE KILLER, SUCCUMBS TO HUNTER'S RIFLE

Lobo, the wolf, king of the Arizona cow killers, is dead. After a long and successful career as a cattle bandit on the Arizona plains he has bitten the dust at the command of a Government hunter, who brought him down with one shot from a rifle. And at that the rifle had the rear sight missing.

For three years, according to the report received by the Biological Survey, United States Department of Agriculture, Lobo has taken toll of purebred Hereford stock near Kingman, eluding all hunters and leading apparently a charmed life. Once in two weeks the old bandit of the plains went over his trail. On one ranch alone 50 fine white-faced yearlings have fallen victim to his skill and cunning within a year. Several other ranches tell similar stories of Lobo's depredations.

Perhaps it was the old wolf's belief that his luck would last forever; perhaps it was that he was getting old; anyway, he got careless. Wary of men, the big fellow didn't mind the near approach of an automobile containing the hunter—and fell at the first crack of the rifle. He weighed 78 pounds after the skin from the shoulders to the head was removed and was the largest wolf ever seen on the range.

Cattle and rangers of Arizona are sleeping easier as a result of Lobo's death, and several thousand dollars in stock will be saved annually.

NO FIXED DEFINITION FOR MOTOR TRUCKS ESTABLISHED

What is a motor truck?

There is no universally accepted standard of what constitutes a motor truck in the various States, says the Bureau of Public Roads, United States Department of Agriculture. As a result, only 13 States have furnished the department with the important data—so essential to road building—as to the sizes of trucks and commercial cars using the Nation's highways during the first six months of 1921.

"In some States," says the department, "all motor cars are registered on the same basis; in others, only cars having solid tires are classed as trucks; while in others all motor vehicles used for carrying freight or merchandise of any kind whatever are classed as trucks. Even those States which provide for a separate registration for motor trucks do not employ the same basis for designating the size of the vehicle. Some States use the total weight of the loaded vehicle, others the weight of the unloaded vehicle or the weight of the chasis, and still others use such indefinite bases as the horsepower or the cost of the vehicle."

The need for definite and uniform information concerning motor trucks in use on roadways is felt, the department says, in the preparation of data which will enable road builders to take accurately into consideration the effect of such traffic.

LIMIT ON HUNTING LICENSES ADVOCATED TO CONSERVE GAME

During the hunting season this fall more than 5,000,000 persons, estimates the Biological Survey of the United States Department of Agriculture, will go out with a gun into the woods and fields of America. Their going emphasizes the growing need of more adequate and uniform laws to conserve and protect the country's dwindling game supply.

"It has been the practice in many States," the department says, "to issue hunting licenses for the open season to all applicants, with too little regard for the available game supply of any particular area. The hunters may far outnumber the animals hunted within a given section, and under such conditions the extinction of big game especially is inevitable.

"The Department of Agriculture advocates a limited license plan for big game based on annual estimates of game conditions in each district. This means that the number of big-game licenses issued for a given area in one season would depend upon the number of game animals which it has been determined in advance can be spared. Proper administration of this sort should conserve game in the greatest numbers consistent with the reasonable demands for local grazing and other interests and obviate the necessity for establishing perennial closed seasons, except on areas being restocked."

Country's Progress in Dairying Emphasized at National Dairy Show

The National Dairy Show is the marker that is set up every year to indicate to the country the progress that has been made by the dairy industry and by other industries that are based upon it. But it does even more than that—it points the way to future developments, and in this the United States Department of Agriculture is taking an important part.

At the show held in St. Paul, Minn., from October 8 to 15, visitors had the best opportunity ever afforded to get a comprehensive view of the needs and possibilities of the industry and of the improvements and advantages that have been made available through painstaking investigations. This year in illustrations, both graphic and photographic, these slogans were emphasized in the Government exhibits: Better cattle and how to obtain them; Better products and how to produce them; Better markets and how to reach them.

Life-Size Models of Cows.

In a manner of speaking, the cow and the farm always hold the center of the stage at the National Dairy Show, but at this one they were actually on the stage in lifelike models. Instead of depending upon charts and statistics, the salient points were brought home to the observer by stage settings representing actual farm scenes and cattle, of the kind that usually go with the surroundings, shown grazing in the painted fields.

One farm breathed comfort and prosperity, and in its lush pastures grazed cattle that showed the effect of years of careful breeding. The other was the kind of farm that in the old days would have been known as Farmer Slack's place. In its pastures were nondescript cows—the kind that too many farmers still keep but that do very little toward keeping the farmer and his family.

The reason for these two stage farms, set side by side, was evident—the striking contrast of abundance and poverty emphasized the difference in what may be expected from good and poor cows, from poor sires and sires bred from a long line of high-yielding ancestors. Poor animals soon paint the whole farm in drab colors, while good ones keep up the fences and brighten the buildings. The improvement is even more noticeable in the bank account.

But this series of stage scenes that the Department of Agriculture puts on goes farther than merely to show beautiful pictures of success and somber paintings of failure. It showed pictorially how a farm community may organize to obtain improvement at the lowest cost and in the shortest practicable time. One stage showed how the farmers in a community grouped their farms into blocks and organized a bull association that resulted in a marvelous development in the herds—shown in the records which were posted at the side of the stage. On another stage was a show ring in which were 6 purebred bulls, and another ring in which there were 19 scrubs. These models were exact reproductions in miniature of real animals, the purebreds representing the bulls owned by the first cooperative Ayrshire Bull Association of America, which took the place of the 19 scrubs depicted.

But this was only a small part of the story of milk production and marketing that was unfolded by the artist's brush and actual demonstrations. Some of the questions answered were these: What feed is needed to make 100 pounds of milk? How can undernourishment in children be eliminated? How are bacterial counts of milk made? What is the "Better Sires—Better Stock" campaign and how can a farmer avail himself of its advantages? What do certain germs look like? What various things and how much of each can be made from 100 pounds of milk? Is dairying more profitable than formerly?

Market End Is Most Important.

Each year more and more farmers are realizing that no matter how they improve the methods of production they are still far from the head of the procession if they do not give a great deal of attention to the matter of markets. And it is no longer difficult for a dairyman to obtain the best market information, for the Bureau of Markets and Crop Estimates of the Department of Agriculture is always at his service. What this bureau can do for him was forcefully brought out at the dairy show by striking illustrations and by men who are able to answer the various questions that the problems of selling bring up.

One of the striking illustrations of the exhibit showed an enormous balance that extends across the Atlantic from America to Europe. It showed how vital to the American producer are world supplies of dairy commodities and the leveling influence of easy transportation and the dissemination of market news. Charts showing how this leveling has actually occurred in the case of butter accompanied the central illustration. Another panel in the series showed streams of milk flowing into a big pool which is the world's exportable surplus. Statistics of the world milk trade were shown in connection.

BUTTER INSPECTORS SHOWED WORK AT NATIONAL DAIRY SHOW

In the past butter makers have often been in the dark as to the real quality of the butter they put upon the market, and frequently they feel that they have not been fairly treated by commission men and others in the markets. But the creamery man is not without friends, for the United States Department of Agriculture offers him an inspection service that stands almost as a court of last resort. Any person who wants this service may have it by applying for it. The Government inspectors examine butter in cars, in storage, or in stores, and the certificates they issue stand in court, but they seldom get that far, as they are almost universally accepted.

At the National Dairy Show which was held in St. Paul, Minn., October 8 to 15 butter inspectors showed how they do their work, and exhibits that have been prepared by the department showed the great advantage that comes from marketing butter of a high grade. On the face of it butter that scores 88 would not seem to be much inferior to that which scores 92, but it was shown that the spread of price between those two grades is very large, far greater than the difference in cost of manufacture. As Poor Richard might have said, "A little better butter makes a much bigger bank balance."

KANSAS CITY FIRM VIOLATES U. S. GRAIN STANDARDS ACT

Findings of the Secretary of Agriculture just issued show a violation of section 5 of the United States grain standards act by H. T. Fowler, doing business as Fowler Commission Co., Kansas City, Mo.

The Secretary found that this company on January 25, 1921, caused to be shipped to a customer in Arkansas certain wheat, contained in car Erie 86343, which had on January 24 been inspected as No. 2 Red Winter, smutty, and on January 25 reinspected as No. 2 Red Winter, smutty. Notwithstanding these inspections, the Fowler Commission Co. represented to its customer that the car contained No. 2 Red Winter wheat.

Bar Imports of Stock from Countries Afflicted with Foot-and-Mouth Disease

The prevalence of foot-and-mouth disease in some European countries, in certain sections of Asia and Africa as well as in South America, has caused the United States Department of Agriculture to institute special quarantines against the importation of live stock from these places. This systematic survey of foreign sources of breeding stock and protection against the introduction of diseased animals is annually worth millions of dollars to the live-stock breeders of the United States.

Obtain Permit Prior to Importation.

Any one who wishes to import cattle, sheep, goats, swine, or other animals from any country, except Canada or Mexico, must first obtain from the Secretary of Agriculture a permit, to be presented to the American consul at the port from which the animals will be shipped. No permits are issued for shipment from countries where rinderpest, surra, foot-and-mouth disease, or contagious pleuro-pneumonia exist.

Foot-and-mouth disease prevailed to a serious extent in England during the past two years, but recently has been abated to the extent that horses from both England and Ireland are now allowed to enter the United States if certain restrictions regarding feeding and care are observed. These regulations require that the animals be subjected to disinfection, both before shipment and after arrival in this country, and that the feed and bedding used during the voyage come from this country. These precautions, although they may seem very radical to those who do not appreciate the critical character of the diseases under discussion, are effective in preventing the introduction of live-stock plagues into the United States.

"CULTURE" SWISS CHEESE BRINGS HIGHER PRICES

The method of making Swiss cheese with purified and controlled bacterial cultures, developed by the Dairy Division of the United States Department of Agriculture, has now passed definitely into the commercial stage. This new process was worked out in the dairy laboratories, given thorough trials in the experimental cheese factory operated by the Dairy Division at Grove City, Pa., and is now being used by a number of commercial factories in various parts of the country.

The results obtained by two Ohio factories indicate that it will be worth while for those interested in the manufacture of Swiss cheese to adopt the method and give it a fair trial. For the cheese made in June of this year one of these factories received a straight price of 34½ cents a pound; the other factory, 30 cents. At the same time other factories in this area received from 20 to 22 cents. Only one of them succeeded in selling for as high as 25 cents. For the July product, one of the factories received 36 cents for fancies and No. 1 and 27 cents for No. 2. The old-system factories received the same price as for June cheese.

The principal reason the buyers were willing to pay this margin over the general run of cheese made in the locality was that the percentage of high-grade cheese had been greatly increased. In June one of these two factories made 94 per cent of fancy and No. 1 cheese and the other 90 per cent, whereas many factories using the old method make only 25 per cent of this class of product.

FEEDING YEAST TO HENS FOUND NOT BENEFICIAL

Preliminary tests have been carried on by the Poultry Husbandry Division of the United States Department of Agriculture in the use of yeast as a feed for laying hens, the theory being that this material was extremely high in vitamines and particularly valuable in the dietary of laying hens. In the initial test the yeast was dissolved in warm water, added to the mash, and the mixture allowed to stand for 24 hours until the yeast had thoroughly permeated the feed. While the hens ate this mash fairly well, with the result that their egg production was slightly increased for a short period, apparently they soon tired of the mixture and did not consume it with a relish. Subsequently, decreased egg production resulted, and the mortality among the fowls which received the yeast was noticeably higher than in the pens not receiving it.

It is thought that this mortality was due to changes occurring in the mash which developed while it was being held in a moist condition for the 24-hour period previous to feeding, rather than as a result of the yeast itself. The moist mash was discontinued and the experimental pens were put on a dry mash containing 1 per cent of dried fresh yeast. The condition of the flock improved materially with this change, and the birds soon resumed their normal appearance, with fair egg production.

However, the egg yield was not greater than that from check pens without the yeast. Thereafter, 3 per cent of yeast which was air and sun-dried and fed in a ground condition was used in the mash without any perceptible increase in egg production. These tests in the feeding of yeast were not conducted on a very extensive scale, nor long enough to determine thoroughly its value. The results were not promising and unless some better method of feeding the yeast is found this product is not likely to be of much value for laying hens.

NEW WATERMELON DISTRICT ATTRACTS WIDE ATTENTION

A half-million-dollar cash crop of watermelons is grown annually in two counties of southeastern Missouri, which were recently considered swamp counties. By clearing and draining these lands a sandy soil is obtained, which, with abundant moisture and hot weather, is making the section widely known for its watermelons. The district, which has been developed the past 10 years, centers around Kennett, where a representative of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, is stationed each year to aid in marketing the crop. The season extends approximately from July 25 to August 30, which about bridges the gap between heavy southern shipments and the heavy yield farther North. At this period Missouri becomes temporarily the most important watermelon shipping district of the country.

MOTOR TRUCKS SAVE TIME.

The experiences of 753 farmers in Eastern States who use motor trucks are described in Farmers' Bulletin 1201, which may be obtained free upon application to the Division of Publications, United States Department of Agriculture. A complete analysis of the reports which form the basis of this bulletin is contained in another bulletin, department No. 910, Experience of Eastern Farmers with Motor Trucks.

Of the 753 farmers who were asked to say what they had found the chief advantage in owning a truck, 91 per cent replied "saving time."

The Well-Planned Kitchen Should Meet Requirements of Well-Arranged Workshop

A kitchen conveniently planned and equipped, having good lighting and ventilation, saves time and labor for the housekeeper. It contributes to the health and contentment of the whole family. Circular 189, The Well-Planned Kitchen, just issued by the United States Department of Agriculture, discusses the points which are essential in making the kitchen a pleasant and effective workroom.

Improve the Old Kitchen.

To remodel an old kitchen is often a difficult problem, but even minor improvements, such as refinishing the walls, woodwork, and floor attractively or adjusting the table and sink to a comfortable working height, reduce drudgery and save energy.

It is best, if possible, to use the kitchen only as a place for preparing food. If the laundry, wash room, and general storage room are located elsewhere nearby, it is more sanitary. A dining alcove partitioned off the kitchen is recommended in many cases to save steps. A small kitchen about 9 by 12 is generally considered most convenient.

The location of the kitchen with respect to other rooms, the outlook from its windows, and the placing of doors and windows are points to be well considered. A trim back yard with good walks helps to keep the kitchen clean. A kitchen should be well ventilated in winter as well as in summer with door transoms and ventilating window screens. The sink, stove, worktable, and other important parts of the kitchen should be well lighted and the floor easy to keep clean. Running water is desirable, both hot and cold. Windows and doors should be screened against flies.

Saving Steps Conserves Energy.

The proper grouping of sink, stove, and worktable to save steps is very important. All permanent equipment should be substantial and easy to keep in order. An abundance of cupboard and shelf room, well planned, helps orderly storage of utensils and supplies. Grouping articles which are used together saves time. A rest corner is recommended. The kitchen as a whole should meet the standards of a convenient well-arranged workshop. Circular 189 is free upon application to the United States Department of Agriculture.

U. S. WEATHER BUREAU ASSISTS STOCKMEN TO GUARD ANIMALS

The stock growers of the great range States of the West are vitally interested in cold waves, heavy snows, high winds, and the storms known as "blizzards." The Weather Bureau of the United States Department of Agriculture, in its endeavors to assist stockmen, issues warnings of these unfavorable conditions which are dangers to farm animals. These warnings are widely distributed by telegraph and telephone to large centers, but the further dissemination must devolve on the people interested. The problem has been largely solved in some States, particularly Missouri, by telegraphing the warning to one central point in each county, where arrangements are made to telephone information of the warnings to each community interested.

When a warning is received the farmers and stockmen on the great western ranges arrange to graze their stock near shelter, or in such a direction from shelter that the stock will drift toward it when the anticipated severe weather comes. A modification of this service consists of sheep-shearing and lambing forecasts and warnings. In early shearing and lambing districts shearing is delayed or newly shorn sheep, ewes, and young lambs are kept near suitable shelter, such as corrals, where they will receive protection when wind, snow, or cold rains are expected.

UNUSUAL EXHIBIT OF BUTTER PACKAGES AT DAIRY SHOW

For the same reason that a man prefers to eat his meals from a clean tablecloth he prefers to get the butter he eats in a clean and attractive package—it helps him to get more enjoyment from his food and that means he really gets more value out of it, even though carelessly packed products may contain just as much food value as those that are put up carefully.

The package into which butter is put is of more importance than most food packages, because the product which it holds is extremely sensitive to outside influences, especially odors. Men who have made a business of studying market conditions and methods have long given attention to the package problem and they are still at it. This year at the National Dairy Show, held in St. Paul, Minn., October 8 to 15, the United States Department of Agriculture had an unusual show of butter packages that proved of as much interest as a lot of curios. The department has collected packages from the various countries of the world that make butter in considerable quantities, and they were shown in comparison with packages that are used in our own country. In addition there were examples of good and of poor packing.

Birds Kill Many Injurious Insects, Thus Save Crops from Destruction

Mobilization of the wild birds, an army of the air that allies itself with man to fight crop pests, nearly always follows the presence of large numbers of insects that prey upon growing plants. Their aid in stamping out the menace is almost incalculable, says the Biological Survey, United States Department of Agriculture, in Yearbook Separate, "Farm Help From the Birds." Some illustrations of what the birds have done are cited by the department, as follows:

On one Utah farm infested by the alfalfa weevil, English sparrows alone in one season fed to their young, it is estimated, 500,000 of the pests, making them about one-third of the diet of the growing birds. Sixty-six kinds of birds feed on the cotton-boll weevil, the greatest feathered enemy of this pest being the orchard oriole. A single stomach of this kind of bird contained, upon examination, 41 boll weevils. The green bug or wheat aphis also—but let the department tell the story:

"On a 200-acre farm in North Carolina, where wheat, rye, and oats were severely attacked by green bugs, it was found that the birds were very effective in destroying the pests. The outbreak was at its height during the migration season of such birds as the goldfinch and the vesper and chipping sparrows, which with other species on the farm numbered more than 3,000 individuals. It was found that these birds were destroying green bugs at the rate of nearly 1,000,000 a day, and on days when additional flocks of migrants were present this destruction was doubled. During the season such numbers of birds flocked to the grain fields that the aphis infestation was reduced by an incalculable number."

Hardly an agricultural pest exists, the department states, but has numerous effective bird enemies. For instance, 25 kinds of birds are known to feed upon the clover weevil and a like number on the potato beetle, 36 on the codling moth, 46

on the gypsy moth, 49 on horseflies, 67 on billbugs, 85 on clover-root borers, 98 on cutworms, 120 on leaf hoppers, and 168 on wire worms.

"A classic instance of the concentration of bird attack upon an army of insect invaders," the department says, "occurred during the severe outbreaks of the Rocky Mountain locusts between 1865 and 1877. So numerous were these voracious pests that many places visited by them were denuded of every green thing. A thorough investigation was made of the relation of birds to the outbreak, and it was found that practically every species, from the largest birds of prey to the tiniest humming birds, from ducks and other aquatic fowl to typical bird denizens of the dry plains, turned to feeding upon locusts. In fact, most birds gorged themselves with this abundant supply of food, and in doing so were the means, in numerous cases, of saving crops from destruction.

HOME-DEMONSTRATION AGENTS IMPROVE THEIR FAIR EXHIBITS

There has been a consistent effort this year by extension workers of the United States Department of Agriculture and the State agricultural colleges to improve the type of educational exhibits at the State and county fairs. At the Indiana State Fair held during the first week of September, well-selected interior furnishings were featured in one of the home-demonstration booths, nutrition work in another, and the "evolution of a hat" in a third.

In the first a built-in fireplace was shown with a few suitable mantel ornaments instead of the frequently seen clutter of meaningless objects. One good picture was hung on a wall covered with appropriate wallpaper. Considerable attention was given to well-selected hangings and floor coverings. The treatment of ordinary board floors with stains and varnish was emphasized. In the nutrition booth a model of the milk train which travels farther than the other food trains, was loaned by the United States Dairy Division, and the proper selection and preparation of children's meals were featured.

CHILDREN CAUSE 500 PER CENT JUMP IN TOWN'S MILK SALE

If a child can be persuaded to taste and like milk, and to ask for it at home, the family will usually provide it for him. The milk campaign at Madison, Wis., like many others that have been conducted cooperatively by the United States Department of Agriculture, the State agricultural college, and the local people, was characterized by many instances of the correctness of this theory on which milk campaigns are largely based.

One milk dealer in Madison had been leaving a pint of milk a day for a certain family with four children. During the milk campaign the order amounted first to 2 quarts, and then to 3. When he questioned the mother about the reason for this sudden increase, she replied that she had never been able to get the children to drink milk at all until they heard so much talk about it in school. Fifteen to 30 per cent increase in milk sales is frequently reported following milk campaigns, but in this case the increase was 500 per cent.

Another milk dealer was asked by an Italian if he would sell 4 quarts a day at hotel prices. The Italian was much disappointed to learn that even a 4-quart order was hardly sufficient to warrant wholesale rates.

Milk campaigns evidently have Americanization value when they reach out and help foreigners as well as American-born parents to appreciate the fact that milk is the ideal growth food for children, many of whom are given too little of it.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended October 5, 1921:

Motor Trucks on Eastern Farms. By H. R. Tolley, Agricultural Engineer, and L. M. Church, Assistant in Agricultural Engineering. Pp. 23, figs. 10. Joint Contribution from the Office of Farm Management and the Bureau of Public Roads. 1921. (*Farmers' Bulletin 1201.*)

Planting and Care of Street Trees. By F. L. Mulford, Horticulturist, Office of Horticultural and Pomological Investigations. Pp. 25, figs. 25. Contribution from the Bureau of Plant Industry. August, 1921. (*Farmers' Bulletin 1209.*)

Take-All of Wheat and Its Control. By Harry B. Humphrey, Pathologist in Charge, Aaron G. Johnson, Pathologist, and Harry McKinney, Assistant Pathologist, Cereal-Disease Investigations, Office of Cereal Investigations. Pp. 12, figs. 5. Contribution from the Bureau of Plant Industry. August, 1921. (*Farmers' Bulletin 1226.*)

Laws Relating to Fur-Bearing Animals, 1921. A Summary of Laws in the United States, Canada, and Newfoundland, Relating to Trapping, Open Seasons, Propagation, and Bounties. By George A. Lawyer, Chief United States Game Warden, and Frank L. Earnshaw, Assistant, Interstate Commerce in Game. Pp. 31. Contribution from the Bureau of Biological Survey. September, 1921. (*Farmers' Bulletin 1238.*)

Handbook for Campers in the National Forests in California. Pp. 48. Contribution from the Forest Service. September, 1921. (*Department Circular 185.*)

Putting Wood Waste to Work. By Samuel T. Dana, Forest Service. Pp. 24, il. (*Separate 856. Yearbook 1920.*) Price, 5 cents.

The Farmers' Interest in Foreign Markets. By E. G. Montgomery and C. L. Luedtke, Bureau of Markets. Pp. 8, il. (*Separate 860. Yearbook 1920.*) Price, 5 cents.

Reconnoissance Soil Survey of the Upper San Joaquin Valley, California. By J. W. Nelson and Walter C. Dean, of the University of California, and E. C. Eckmann, of the U. S. Department of Agriculture. Pp. 116, pls. 4, fig. 1, map. (*From F. O. Soils, 1917.*) Price, 25 cents.

Soil Survey of Banner County, Nebraska. By F. A. Hayes, of the U. S. Department of Agriculture, and H. L. Bedell, of the Nebraska Soil Survey. Pp. 62, fig. 1, map. (*From F. O. Soils, 1919.*) Price, 15 cents.

Soil Survey of Meigs County, Tennessee. By A. T. Sweet and J. H. Agee. Pp. 38, fig. 1, map. (*From F. O. Soils, 1919.*) Price, 15 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the superintendent of documents direct, not to the Department of Agriculture.

SUCCESS IN APPLICATION OF U. S. TENTATIVE WOOL GRADES

(*Continued from page 3.*)

Place the tied fleeces in regulation wool sacks or cover them with canvas or new burlap.

Select a clean, dry place for storing the wool until sold. Never permit the wool to lie upon the ground nor store it in a basement.

Keep the white and black wool separate. Never permit any portion of black wool to be mixed through the white.

Separate the burry, seedy, cotted, dead, black, and gray fleeces from the clean, white, well-grown wool, and pack separately. Never pack all grades together indiscriminately.

Other Marketing Helps.

Woolgrowing is one branch of farming where the producer continues to turn out a product without having more than a general idea as to market outlets and demand. Formerly this was due to the lack of adequate and reliable information regarding commercial supplies, movements, prices, and general market conditions. Reports regarding consumption, stocks, and imports of wool are now issued regularly by the Bureau of Markets and Crop Estimates, as well as a market information circular, and, although this service is not yet as inclusive as when uniform grades for wool are universally adopted, according to statements of many interested in the wool industry it has been found invaluable from a marketing standpoint.

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Weekly News Letter

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Washington

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FAVOR CONTINUING FIGHT ON EUROPEAN CORN BORER

State Officials and Entomologists Take Strong Stand at Hearing Before Federal Horticultural Board.

Decided Opposition Expressed to Proposal to Abandon Quarantine of Infested Areas—Recommend that Congress Be Asked to Provide Adequate Funds.

Continuance of the Government's fight against the European corn borer along the present lines was unanimously favored by representatives of important agricultural associations and State commissioners of agriculture and entomologists at the hearings held by the Federal Horticultural Board, United States Department of Agriculture, at Washington, October 11. Decided opposition was expressed to the proposal to abandon the quarantine of infested areas and wage the campaign on a regional basis.

Committee Will Draft Recommendations.

After the conclusion of the hearing a resolution was adopted by the State representatives attending the hearing authorizing Commissioner of Agriculture Gilbert, of Massachusetts, to appoint a committee of five members representing the infested areas to draw up recommendations and present them to Secretary of Agriculture Wallace. It was also voted as being the sense of the delegates that the Federal Government should appropriate $275,000 for conducting the work against the borer in the various States affected. Assurances were given by delegates from most of the States that Government money spent in their States would be matched by an equal amount of State funds for the work.

The board indicated that it was in substantial agreement on the plan to continue the quarantine control of the European corn borer along the present lines, the quarantine to be extended to include the new areas of infestation; and that it would recommend such action to Secretary Wallace, together with the recommendation that Congress be asked for funds adequate to administer such quarantine. The experts of the Bureau of Entomology indicated that such quarantine control of all known areas of infestation could probably be adequately taken care of on an appropriation of $275,000, the same amount that was provided for the current fiscal year.

The hearing was called by the board as a result of new infestations of the pest recently found along the southern shore of Lake Erie and extending westward to within 60 miles of the Indiana border. With the pest so menacingly near the country's corn belt, the board was forced by lack of funds to consider the abandonment of its present method of quarantining infested areas and resort to a regional system. Under this method the movement of possible carriers of the pest would be permitted within the region, but not to places outside of it. This, however, met with opposition from all factions present at the hearing.

States Were Well Represented.

Among the organizations represented at the hearing were: The American Farm Bureau Federation, the State Grange of Connecticut, the Grain Dealers' Association, the National Canners' Association, the Boston Market Gardeners' Association, and the Northeastern Seedsmen's Association. Commissioners of agriculture of Massachusetts, Connecticut, and Maine were also present, and in addition official and other representatives from the States of Connecticut, Indiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, and Wisconsin. The States of Illinois, Missouri, and Rhode Island were represented by letter.

The severe drought in portions of the West has caused thousands of wild ducks in the vicinity of Napoleon, N. Dak., to forget their fear of civilization and, spurred on by thirst, to enter towns and barnyards in search of water, according to a report made to the Biological Survey, United States Department of Agriculture, by one of its representatives.

WINTER WHEAT COSTS IN 1920 BUT LITTLE LESS THAN 1919

Survey Shows that Yield Per Acre is a Large Factor in Influencing Cost Per Bushel.

Farmers Sustained Heavy Losses Through Decline in Price Which Set in Soon After 1920 Crop Began to Come on the Market—No Profit in Small Yields.

The cost of producing winter wheat in 1920 showed about as high an average as in 1919, according to a preliminary report on farms surveyed in 10 counties in the winter wheat belt, issued by the United States Department of Agriculture. The range in cost for the bulk of the crop (80 per cent of production) on 216 owner farms surveyed in 1920 was found to be $1.20 to $2.50 per bushel as compared with $1.30 to $2.50 for the bulk of the crop produced on the 284 farms surveyed in 1919. In 1920 about 46 per cent of the operators held their costs down to the average ($1.80) or lower; in 1919, with an average cost of $1.87, 47 per cent of the operators kept their costs within that limit.

Many Farmers Sustain Heavy Losses.

With costs almost as high as those of the previous year and with a declining market many of these farmers sustained heavy losses on their wheat. In 8 of the 10 counties surveyed only 10 to 20 per cent of the wheat was hauled direct from the machine to the elevator. On that part of this wheat which was sold immediately the operators got the benefit of the prices that prevailed before the slump, which began soon after the 1920 crop began to come on the market.

The survey in question, conducted by the Office of Farm Management and Farm Economics, yielded figures on labor and material requirements that should be of vital interest to the winter wheat grower, as indicative of what may be expected under conditions approximating those that prevail in the counties surveyed. The accompanying summary table

shows the average net cost per bushel and per acre for the several counties surveyed and the distribution of the costs to labor, materials, overhead, etc.

The results of the survey serve to stress the importance of yield per acre as a factor influencing the cost per bushel. It was found that the operators having costs of $1.20 or under per bushel could boast yields ranging from 12 to 31 bushels per acre, while those so unfortunate as to have wheat costing $4 or more per bushel had yields ranging from as low as 3 up to 7 bushels per acre.

TABLE II.—*Summary of average net cost per acre and per bushel of winter wheat, 1920 (216 owned farms).*

Item.	Missouri.		Nebraska.			Kansas.			Oklahoma.	
	Pike County.	Carroll County.	Gage County.	Clay County.	Cheyenne County.	Thomas County.	McPherson County.	Pawnee County.	Garfield County.	Woodward County.
Average yield per acre (bushels)	13.5	17.6	21.5	13.1	19.0	14.1	14.6	12.1	18.4	9.5
Labor (prepare land and seed):										
Man labor cost	$1.99	$1.94	$1.77	$1.57	$1.02	$0.49	$1.72	$0.87	$1.53	$1.51
Horse labor cost	3.69	3.93	3.30	3.08	.61	.80	2.60	1.45	2.60	2.38
Contract labor	.....	.33	.....	.06	.79	.21	.23	.....	.06	.....
Labor (harvest and market):										
Man labor cost	3.54	4.81	4.83	3.83	2.83	2.53	2.79	3.36	2.68	2.52
Horse labor cost	1.64	1.91	1.82	1.45	1.00	1.08	1.09	1.09	1.09	1.38
Contract labor	.08	.08	.06	.....	.23	1.08	.04	.47	.11	.09
Material costs:										
Seed	2.86	2.65	2.73	2.57	1.67	1.59	2.44	2.27	2.34	1.78
Binder twine	.30	.32	.41	.38	.30	.01	.26	.06	.35	.01
Manure and straw	.95	.39	.36	.20	.09	.01	.25	.04	.08	.06
Fertilizer	2.65	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thrashing	1.61	2.80	2.28	1.75	1.78	2.10	2.53	2.34	4.33	2.03
Other costs:										
Taxes and insurance	.51	.54	.96	.73	.40	.24	.98	70	.82	.36
Special crop insurance	.09	.16	.20	.27	1.33	.49	.15	.33	.09	.21
Use cost of machine	2.87	3.00	2.52	1.51	5.38	1.48	2.61	2.08	3.76	2.04
Loss on abandoned acreage	.69	.....	.08	1.33	.18	.....	.....	2.47	.02	3.38
Overhead	1.93	1.92	1.76	1.49	1.03	.99	1.40	1.19	1.52	1.18
Total operating expense per acre	25.40	24.78	23.08	20.22	18.64	13.10	19.09	18.72	21.38	18.93
Credits	1.09	.71	.48	.19	.30	.37	.10	.69	.26	.34
Net operating expense:										
Per acre	24.31	24.07	22.60	20.03	18.34	12.73	18.99	18.03	21.12	18.59
Per bushel	1.81	1.36	1.05	1.54	.96	.90	1.30	1.49	1.15	1.93
Interest on investment	8.25	11.30	14.64	13.57	8.91	5.10	10.63	6.59	9.43	3.23
Net cost, including interest:										
Per acre	32.56	35.37	37.24	33.60	27.25	17.83	29.62	24.62	30.55	21.82
Per bushel	2.42	2.01	1.73	2.57	1.43	1.26	2.03	2.03	1.66	2.30

NOTORIOUS PRYOR CREEK WOLF CAUGHT BY FEDERAL TRAPPERS

A lone wolf which for six years has robbed the ranches of southern Montana, near Billings, and taught the farmers' dogs to run with him and prey on live stock, has ended his reign of terror. Trappers of the United States Department of Agriculture have just reported his capture.

The wolf was the last of its kind in the vicinity. By strength, cunning, and wariness bred of constant pursuit, he had eluded hunters for years while continuing his work of killing calves, cattle, horses, and valuable colts. Not less than 150 animals, it is estimated, had fallen before the four-footed bandit, and the loss due to his depredations amounted to thousands of dollars.

Several dogs from time to time had taken up with the wolf and were taught the way of his kind. One shepherd dog became so well educated that it killed a Shetland pony in its owner's yard. The ranchman's son killed the dog. Not long afterwards the same ranchman's son encountered the lone wolf and a shepherd dog that had been running with him all summer and took after them on his pony. The wolf was too fleet, but the dog was killed.

The wolf was reported as measuring 5 feet 10 inches. Its weight was 82 pounds. While this is not a record for size, the wolf was considerably above the average. It was trapped on the last day of the county fair at Billings and was exhibited there to thousands of persons.

PENNSYLVANIA LEADS IN AUTOMOBILE REGISTRATION

Pennsylvania leads the Union in the number of passenger automobiles registered, according to a tabulation prepared by the Bureau of Public Roads, United States Department of Agriculture. The total number of such cars registered in Pennsylvania is 557,765. California had only several hundred fewer—557,231. Passenger automobiles in New York are estimated, in the lack of complete information, at 505,642. Other States showing large registrations are Ohio, 547,000; Illinois, 512,541; and Texas, 412,332. Nevada has the smallest number of registrations, 8,688.

ERGOT OF WHEAT AND RYE BECOMING SERIOUS DISEASE

Widely Distributed from Coast to Coast and from the Canadian to the Mexican Borders.

Not Only Reduces Yield By Destroying the Heads of Grain, but is Poisonous to Live Stock Which May Eat it in Grain or Ground Feed.

Ergot, a widespread disease of rye, and occasionally reported on wheat and the other cultivated cereals and related grasses, has this year been observed in North Dakota as a destructive disease of wheat. Samples of thrashed wheat sent to the United States Department of Agriculture from several points in northeastern North Dakota carry as much as 10 per cent by weight of the ergot bodies. This figure does not fully represent the probable amount of ergot produced by the crop, for an appreciable percentage of the sclerotia, or ergot bodies, would, of course, be blown out with foreign material either as a part of the screenings or with the straw through the blow stacker.

Ergot can be distinguished in ripening wheat as large bluish black bodies, which in many instances are from three to eight times as large as the grain of wheat or rye which they displace in the head. Many of these bodies fall from the ripe wheat or rye head during the process of harvesting and lie on the ground all winter. They germinate in the spring and produce spores which infect the wheat or rye head when it is in bloom.

Prof. H. L. Bolley, of the College of Agriculture of North Dakota, has recently submitted the following report to the United States Department of Agriculture:

A Bad Pest of Durum Wheat.

"This disease has increased extensively under the conditions which have prevailed during the past two or three years. It has become very destructive in rye and particularly in the durum wheats, even occurring to a marked extent in barley. There are large sections of the State, particularly north and eastward, in which rust has not materially damaged the late wheat.

"The infection from ergot seems to be so matched by the development of the wheat that it was possible for this disease to infect practically every grain in the head, and in many cases more than 50 per cent of the heads, so that crops which were otherwise very promising seemed to be destroyed by ergot in a

week. Great quantities of honeydewlike substance exuded from the blossoms and young grain. This exudation was so great that it ran down the stems so as to collect large quantities of dust and dirt to which the flies were quite attracted."

As a disease of wheat, ergot has become widely distributed across the country from New York to Oregon and from the Canadian border to the southern limits of wheat production, but not until within the past three years has it attracted more than passing attention. From such observations as have been recorded there is some reason to believe that the disease is becoming not only more prevalent but is also more widely distributed. The durum wheats seem to be more subject to attack than do the common wheats; at any rate, reports based on field observations and on samples of thrashed grain show a higher percentage of ergot in the durum varieties.

Ergot is Poisonous to Live Stock.

The importance of ergot as a cereal disease lies not so much in its relation to crop yield as it does in its poisonous effect upon animals that unwittingly have been given a ration of screenings or other feed containing the ergot bodies. It is now generally accepted that flour made from wheat or rye is unfit for food if it contains more than one-tenth of 1 per cent by weight of ergot. Screenings obtained from wheat or rye affected with ergot would naturally include ergot bodies, and these when ground at the feed mill are scarcely recognizable as a part of the grist. Such feed, when fed to poultry or other live stock, may result in fatal poisoning.

As a cereal disease, ergot may be controlled by planting clean seed immediately after any other crop than wheat or rye in which there was an outbreak of ergot.

Winter rye volunteers readily, and these volunteer plants are almost always badly affected with ergot. Sowing wheat after rye, therefore, is bad practice, for, regardless of whether the ergot attacks the wheat, its presence in volunteer rye is sure to leave a considerable quantity of both rye and ergot in the wheat as it comes from the thrashing machine. This foreign matter is likely to lower the grade of the wheat as well as affect its value for bread-making purposes.

Freeing Seed Grain of Ergot.

Rye or wheat containing ergot bodies can be perfectly cleaned by pouring the grain into a vat or barrel containing a 20-per cent solution of common salt and stirring thoroughly to bring the ergot bodies to the surface. The difference in specific gravity between this solution and fresh water will bring all ergot bodies, or pieces of such material, to the surface where they can be skimmed off. The brine should then be drawn off and the grain then washed in fresh water to remove any salt remaining on the seed. The second bath is necessary, as the salt which would otherwise be left on the seed would injure it. The labor and inconvenience of treating the seed can be avoided by using seed known to contain no ergot.

Opportunity for Farmers in Northwest and in Southwest to Grow Feeder Pigs

In the last few years feeder pigs have become a factor on a number of the central markets. Certain sections where finishing feeds are not plentiful or dependable now regularly sell pigs of this class, and corn-belt farmers have come to depend upon them when corn is plentiful or pigs are scarce at home. As this phase of pork production promises to become more important, and as certain areas seem particularly adapted to the growing of feeder pigs, the United States Department of Agriculture plans to study both their production and their finishing.

It is probable that the pigs will be grown at Government farms at Huntley, Mont., and Yuma, Ariz. Pigs, at least those produced on the Montana farm, will be shipped into the corn belt to be finished, and a comparison of methods from farrowing to marketing will be possible.

Pacific Coast Demand for Feeder Pigs.

Before the war many hogs were finished in the Northwest on barley and wheat, but during the war the need for bread grains made this practice inadvisable and hog production fell off and has not come back to normal. Fifty per cent of the live hogs now received on the Portland market are shipped from Nebraska. Feeder pigs are also sent to the coast in some instances, 30 carloads having been recently shipped to a California garbage-feeding firm from Kansas City. The demands of such feeders and of orchardists and vineyardists, who are learning the value of animal manure for their crops, should provide an outlet for many thin pigs that might be produced in the Southwest. This part of the country could hardly expect to ship feeders into the corn belt.

Department men who are studying the problem say that in the Northwest it is planned to have the pigs farrowed in March or April so that they can be grown out on alfalfa and supplemental feeds (which are necessary for the most profitable rate of growth) and be ready for farmers in the western part of the corn belt in October and November, when they should weigh about 100 pounds. Good feeders generally bring a little more than the market price for finished hogs. It is thought that most of the feeders produced in this area will be distributed through the central markets or through the help of county agents. Later, as hog raising develops, it is anticipated that many more will be finished in the locality where grown, particularly in years of good corn and small grain crops.

REGISTRATION RECEIPTS OF MOTOR VEHICLES INCREASE

A total of 9,245,195 passenger automobiles, trucks, and commercial vehicles, 28,114 trailers, and 177,234 motor cycles were registered in the 48 States and the District of Columbia during the first six months of the present year, according to the Bureau of Public Roads, United States Department of Agriculture. As a result of these registrations and the licensing of drivers, the States and District collected, during that period, a total gross revenue of $108,213,165. The figures show an increase of nearly $6,000,000 over the full year of 1920, when such revenues totaled $102,546,212.

"Of the 1920 registration revenues," says the bureau, "$97,671,742, or 95 per cent, was available for road work. Of the registration revenues collected during the first six months of the current year $101,793,416 is available for road work, either by the State highway departments or local road officials." The percentage of the gross during that period is 94—an apparent decrease of 1 per cent, but the increase seems more apparent than real, because in some States the funds do not become available until the end of the year.

Ten State legislatures have imposed a tax on gasoline during the current year. They are Arkansas, Arizona, Connecticut, Florida, Georgia, Montana, North Carolina, Pennsylvania, South Dakota, and Washington. Prior to this year Colorado, Kentucky, New Mexico, and Oregon had levied such a tax. The State of Louisiana has written such a measure into its new constitution.

Weekly News Letter

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UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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The News Letter is a news service, and editors are invited to reprint from it with or without credit.

GEORGE M. ROMMEL RESIGNS; CHIEF OF ANIMAL HUSBANDRY

George M. Rommel, chief of the Animal Husbandry Division of the Bureau of Animal Industry of the United States Department of Agriculture, who has been with the department for 20 years, has resigned to become editor of an agricultural magazine and will take up his new duties November 1.

Mr. Rommel built up the Division of Animal Husbandry and had done distinguished and effective work that is recognized throughout the country as well as in the department. He has been chief of the division since its inception in 1910 and has prosecuted experimental research of far-reaching importance. A native of Iowa, he is a graduate of the agricultural school of the Iowa State College at Ames. He is the author of various bulletins and articles on animal husbandry topics, a fellow of the American Association for the Advancement of Science, a member of the Cosmos Club, and secretary of the American Genetic Association.

Mr. Rommel was a delegate to the first Pan American Scientific Congress held at Santiago, Chile, 1908–9; a delegate, member of the executive committee, and chairman of the conservation section at the second Pan American Scientific Congress held in Washington 1914–15; a member of the department's agricultural commission to Europe, visiting Great Britain and France, in September and October, 1918. Recently he was made secretary to the economic committee of the department. He has had great influence in improving the live-stock industry of the country, especially the growing of hogs and beef cattle, and the breeding of horses for military purposes, he being a pioneer in the revival of the breeding of Morgan horses.

TRAFFIC CENSUS DISCLOSES SIZE AND SPEED OF TRUCKS

How large is the average truck and how fast does it travel? This question and others of interest to truck owners and users of the highways are answered by information obtained in a recent traffic census taken by the Bureau of Public Roads, United States Department of Agriculture, on one of the most traveled highways in New England. The census discloses that 40 per cent of the trucks were of 1 ton capacity or less; 33 per cent between 1 and 2½ tons; 5 per cent between 2½ and 5 tons; and that less than 2 per cent of the trucks were of more than 5 tons capacity.

On a level stretch of road, over which the speed of motor vehicles was timed, it was found that more trucks traveled at a speed of 20 miles an hour than at any other rate. Thirty-seven per cent traveled 20 miles an hour or faster. One truck, whose driver said he was in a hurry to get there, was found to be traveling at a speed of 45 miles an hour.

STORAGE SPACE DOUBLED UNDER FEDERAL LICENSE

Surpassing all previous records, the United States Department of Agriculture, during the week ending October 1, licensed 132 grain warehouses having a total capacity of 6,485,720 bushels, thus more than doubling the grain storage space under Federal inspection and license since the passage of the bonded warehouse act in 1916. This increase brought the number of licensed grain warehouses up to 274, with a total capacity of 12,965,720 bushels. During the same week 20 cotton warehouses also were licensed.

On September 26, there were 259 licensed cotton warehouses, ranging in capacity from 200 to 75,000 bales, providing a total storage space of 1,035,547 bales. Additional applications pending from cotton warehousemen and which have since been granted raised the total capacity to 1,087,427. Licensed cotton warehouses now have capacity equal to one-twelfth of the normal crop. It is seldom that more than one-third of the crop is warehoused at the same time. Thus licensed capacity would be better than 25 per cent of the cotton in storage at any one time. On the same date records showed 17 wool and 2 tobacco warehouses licensed by the department.

Officials in charge of the work report a keen interest developing among warehousemen in the merits of the Federal license system. This has been evident since May of this year and is steadily increasing, with many applications being received. Under the act the department is authorized to license and bond cotton, grain, tobacco, wool, and flaxseed warehouses that are able to meet certain requirements. The receipts issued by the warehouses for the products are looked upon by banks as a high grade of collateral.

GOOD ROADS ARE COSTLY; FEDERAL AID HELPS BUILD 'EM

Road projects in 18 States, totaling more than 265 miles and costing an aggregate of $7,693,778, or an average of over $29,000 per mile, were approved during July by the Bureau of Pubilc Roads, United States Department of Agriculture, for Federal aid, according to the bureau's publication, "Public Roads," just off the press. The total Federal aid approved for these projects is placed at $3,023,152, the remainder of the cost being borne by the States.

All told, there were 56 such projects approved during the month. New York led with 20. Pennsylvania came second with 7, and Kentucky and South Carolina tied for third with 5 projects each. Four Texas projects were approved; New Mexico, Washington, and Wisconsin had two each; and Arizona, Arkansas, Kansas, Maine, Massachusetts, Michigan, Mississippi, Oklahoma, Tennessee, and Virginia each had one project approved during the month.

Wide variation was shown in the character of materials to be used in building the approved roads, but concrete, bituminous macadam, and gravel were the chief materials.

MOURNING DOVES STILL PLENTIFUL.

The mourning dove has not gone the way of the wild pigeon, as it was feared a few years ago it might. Reports from various parts of the country show that this bird has come back by the thousands. A representative of the Biological Survey, United States Department of Agriculture, while on a recent trip through northern Mississippi and western Tennessee, saw great numbers of the doves, reminding him of flocks of blackbirds.

Saving Sweet-Potato Seed Stock When Digging, a Means to Increased Yields

Selection of the sweet-potato seed stock at digging time permits of the choice of potatoes that are true to variety and from high-yielding hills and tends to build up heavy yielding strains, experiments by the United States Department of Agriculture have shown. Seed free from stem rot can be secured at digging time, while the potatoes are still attached to the vines. Each hill should be tested by splitting the stem, and potatoes should be taken for seed only from plants, the insides of whose stems are not streaked with black, though it should be remembered that a heavy frost will also produce a similar appearance.

Many Varieties of Little Value.

Only a few of the varieties of sweet potatoes grown in the United States are of commercial importance. Many other varieties and strains are widely distributed, however, and much of the sweet-potato stock ordinarily obtainable is a mixture of varieties and strains, some of which are practically worthless for market. The United States Department of Agriculture points out that growers will do well to concentrate their efforts to true-to-name stocks of such well-known varieties as Yellow Jersey, Big Stem Jersey, Gold Skin, Nancy Hall, Porto Rico, Dooley, and Triumph. This list includes the well-known worth-while commercial sorts.

Some varieties and strains, while attractive in appearance and good yielders, are of such poor quality that they are not desirable, and these should be omitted from the grower's list of varieties. Some of these undesirables look very much like the standard varieties. A grower should determine the sort best suited to his soil and most in demand in the market available to him, then secure true-to-name seed stock.

Difficulty of Selecting Healthy Roots.

The fall selection of seed is necessary, owing to the fact that in the spring or during the winter it is difficult, and frequently impossible, to tell whether the roots are diseased or not, since after a period in storage the bundles (the tissues traversing the tubers) of healthy sweet potatoes often become somewhat darkened, even though the fungus is not present.

A good plan is to go over the field as the roots are plowed out and select the hills showing the desired characters, as an opportunity is thus presented to study all the characteristics of each plant. It is not necessary to retain the large potatoes from the desired plants for seed, as the medium-sized ones, those from 1 to 2 inches in diameter and from 3 to 6 inches long, are better for seed purposes.

The seed stock should be gathered in crates or hampers, marked to show the variety, transported to the storage house on a spring wagon, and placed in a part of the house where they will not come in contact with the general stock. In other respects the treatment should be the same as that given the commercial crop—that is, it should be cured for a period of from 10 to 12 days, at a temperature of about 85°—after which the temperature should be reduced to about 55° and held there for the storage period. Every sweet-potato grower should secure a copy of Farmers' Bulletin 999, entitled "Sweet Potato Growing," and Farmers' Bulletin 1059, entitled "Sweet Potato Diseases." These bulletins may be obtained free upon application to the United States Department of Agriculture, Washington, D. C.

MILK DRIVE INCREASES USE OF DAIRY PRODUCTS

Consumption of milk is on the increase as a result of the milk campaigns of the United States Department of Agriculture and the State agricultural colleges and local agencies, inaugurated to extend and increase the use of milk and other dairy products in cities, towns, and rural districts. The increases in sales of milk as a result of these educational campaigns carried on during the past year in 11 States, 15 cities, and 4 counties range from 3.5 to 35 per cent, the average increase being 15 per cent. The health of the children has been improved while undernourishment has been reduced.

Nutrition clinics have been held, and underweight, poorly fed children have improved greatly in health as a consequence of the more general and intelligent use of milk as a daily food. In Kansas City a previous survey showed a condition of 30 per cent undernourishment among the children, while after the milk campaign and regular instruction in health habits, a second investigation showed that malnutrition had been reduced to 15 per cent. Of late milk campaigns have been held in Madison, Wis.; Wheeling, W. Va.; Seattle, Wash.; Greenville, S. C.; Akron, Ohio; Warren, Ohio; Winston-Salem, N. C.; Springfield, Mass.; Oskaloosa, Iowa; Baltimore, Md.; Oakland County, Mich.; Cumberland County, Md.; and Jacksonville and Duval County, Fla.

Despite disturbed industrial conditions, increases in milk consumption have been effective, and even in places of much unemployment the quantity of milk used has been kept up to normal. In nearly all cases the milk consumption subsequent to the milk campaigns has been greater than it ever was before.

APPLE PECTIN THAT MAY BE STORED TO AID JELLY MAKING

A method for making an especially rich and concentrated sirup from apple juice for use in jelly making has been developed by the United States Department of Agriculture. This concentrated juice or pectin can be processed and stored for use with fruits which are not in season when apples are abundant.

A comparatively small amount of this sirup can be added to berry or other fruit juice with which it is desirable to use added pectin. The purpose in using it is to make the process of jelly making more certain of success and to increase the yield of high-grade jelly by preventing the long boiling of juices which are more or less deficient in natural pectin. It is particularly useful with such fruit as the strawberry, the flavor of which is most susceptible to injury by cooking. It is useful in cases where for some reason the jelly maker has met with disappointment and finds that she has on hand not a jelly but a rich, well-flavored sirup.

Directions for making apple-pectin sirup are to be had upon application to the Department of Agriculture. Persons who contemplate the use of pectin sirup in the commercial preparation of jams, jellies, and preserves for shipment in interstate commerce should consult the Bureau of Chemistry for information concerning the requirements of the Federal food and drugs act.

EXPANDS MARKET INFORMATION SERVICE.

The Ohio Bureau of Markets, Columbus, Ohio, has had installed in its office in the State capitol a "drop" from the leased telegraph wire operated by the Bureau of Markets and Crop Estimates, United States Department of Agriculture, and is arranging to develop a market news service for fruits and vegetables, live stock and meats, and dairy products. The plans of the Ohio bureau contemplate giving intensive distribution of current news regarding supply and demand and prices of these products to Ohio producers, dealers, and consumers.

Receipts from National Forests Shared by Twenty-Eight States

Twenty-eight States have received checks totaling $619,993 from the United States Treasury as their share of the receipts from the national forests for the fiscal year ending June 30. An additional $247,997 of the receipts has become available for road and trail construction by the Forest Service of the United States Department of Agriculture within the national forests of these same States, making a grand total of $867,990.

Amounts Smaller Than Previous Year.

The amounts are considerably smaller than for the previous fiscal year, when the total was $1,652,088. This is due largely to the concession made by Congress to stockmen, whereby they are allowed until December 1 to pay their grazing fees due last spring. This action was made necessary by the widespread depression in the live-stock business. A small portion of the reduction is due also to a falling off in timber sale receipts of the forests due to business conditions.

Only States within which national forests exist share in the receipts. By act of Congress 25 per cent of the funds derived from timber sales, grazing fees, special uses, etc., are returned to the States for roads and schools. The amount thus received is redistributed to counties in lieu of taxes, based on the area of national forest land within their boundaries. In addition, 10 per cent of the forest receipts are spent within the counties by the Forest Service on road and trail construction and maintenance.

The amounts of the 25 per cent and 10 per cent items for each State are as follows:

State.	Amount paid to States, 25 per cent item.	Forest Service road and trail fund, 10 per cent item.	Total.
Alabama	$196.72	$78.69	$275.41
Alaska	14,756.35	5,902.54	20,658.89
Arizona	42,430.51	16,972.20	59,402.71
Arkansas	12,302.48	4,920.99	17,223.47
California	132,406.90	52,962.76	185,369.66
Colorado	42,854.37	17,141.75	59,996.12
Florida	3,761.35	1,504.54	5,265.89
Georgia	1,410.69	564.28	1,974.97
Idaho	68,544.70	27,417.88	95,962.58
Maine	464.97	185.99	650.96
Michigan	542.70	217.08	759.78
Minnesota	3,409.33	1,363.73	4,773.06
Montana	47,677.04	19,070.81	66,747.85
Nebraska	148.86	59.54	208.40
Nevada	6,356.83	2,542.73	8,899.56
New Hampshire	5,542.40	2,216.96	7,759.36
New Mexico	21,491.12	8,596.45	30,087.57
North Carolina	7,701.22	3,080.49	10,781.71
Oklahoma	841.70	336.68	1,178.38
Oregon	73,206.79	29,282.72	102,489.51
South Carolina	146.64	58.66	205.30
South Dakota	15,680.41	6,272.17	21,952.58
Tennessee	4,456.73	1,782.69	6,239.42
Utah	18,163.91	7,265.56	25,429.47
Virginia	5,782.23	2,312.89	8,095.12
Washington	55,128.99	22,051.60	77,180.59
West Virginia	1,110.45	444.18	1,554.63
Wyoming	33,476.58	13,390.63	46,867.21
Total	619,992.97	247,997.19	867,990.16

CAREFUL HANDLING OF WOOL NEEDED FOR BETTER PRICES

A program for better prices for New Mexico wool should start back on the ranch at the time of shearing, if not even before that. This is the conclusion reached by the Bureau of Markets and Crop Estimates, United States Department of Agriculture, as a result of a preliminary study, just completed, into the prevailing practices in the shearing and handling of New Mexico wool preparatory to marketing.

At one of the ranches visited the representative of the department found that 5,000 head of sheep were being sheared with hand shears by Mexicans. As the men were paid according to the number of sheep sheared, the chief thought in the mind of the shearers was to get the wool off the animals as quickly as possible. The clipping was uneven and the fleece in bad condition when shorn. In addition, the fleeces were tramped into sacks without tying, regardless of the fact that the appearance of the wool would be an important consideration affecting its sale.

If better prices for wool are to be had the department cautions growers that the product must be handled carefully, with an eye to marketing it in such condition that it will attract buyers.

Sunday Auto Travel Greatest; Least, Tuesday and Wednesday

If you are going on an automobile trip and want to avoid all possible traffic you should go on Tuesday or Wednesday. Such is the conclusion reached from a study of a traffic census taken recently by the Bureau of Public Roads, United States Department of Agriculture, on one of the most traveled roads in the United States. If you want to go at an hour when there will be the least traffic, start between 2 and 3 o'clock in the morning.

Traffic increases in amount steadily from Wednesday to Saturday, the census shows, and then jumps into big volume on Sunday. The volume on Sunday is about twice that on Tuesday or Wednesday. On Monday there is a decided drop from the Sunday figures and on Tuesday the lowest ebb is reached.

There is less traffic on the road between 2 and 3 o'clock in the morning than at any other time of day. From 3 o'clock to 5 there is a slight increase; then a steady climb until 11. Between 11 o'clock and 1 there is a slight drop, and then an increase again until the peak is reached between 2 and 3. After 3 o'clock traffic drops slightly until 7 when the decrease becomes more pronounced. By midnight traffic has almost reached its lowest point.

Ninety per cent of the day's traffic, the census shows, rolls over the road between 7 a. m. and 9 p. m., and 52 per cent between 1 p. m. and 8 p. m.

TAKE EXTENSIVE SURVEY OF NATION'S HIGHWAYS

America's far-flung net of roadways is soon to be measured accurately in terms of mileage, cost, character of construction, improvement work, and general condition by the Bureau of Public Roads of the United States Department of Agriculture. The survey, which is the most extensive ever undertaken and the first in seven years, is to be made with the aid of State and local officials and individuals the country over, and is comparable only to the great task of taking the national census.

Nobody, in all probability, could guess to-day within millions of dollars what the roadways total, in dollars and cents, on the ledger of national assets. Nobody knows how many miles there are where wheel may roll. The strength and the weakness of the Nation's transportation arteries likewise are unknown in detail.

When the survey is completed, all these and other facts will be known and will be available for guidance to road builders. In addition there will be abundant data to show up comparisons of costs. The well-built roads of, say, Pennsylvania can be laid, dollar for dollar and mile for mile, alongside the well-built roads of California and other States. First cost and maintenance of macadam, asphalt, concrete—every kind of road built—from one section can be matched against such costs from every other section, if desired. The way to make the dollar most effective in road work thus will be pointed out.

Rural highways as well as urban are to be included, the latter embracing all roads, streets, and alleys in incorporated communities of 2,500 inhabitants or more. How the funds are provided for constructing and maintaining roads also will be made known. The amount invested in road machinery—

an item concerning which even approximate information is lacking to-day—will be sought. After the information is obtained it will be kept up to date.

In undertaking the survey, the bureau requests the assistance of every unit of Government doing road work in the Nation; of road officials the country over; and of associations, organizations, and individuals, down to the man with a flivver, having information or data as to local highway activities. As future legislation may be based on percentage of road mileage, it is pointed out that it is essential for each unit to have its total, as well as its improved, road mileage carefully and correctly recorded in the survey.

MONTANA EXTENSION WORKERS INDORSE COMMUNITY PICNICS

For several years Montana county agents have laid great stress on the community picnic as a means of getting people acquainted with each other, breaking down reserve, restraint and timidity, curing "offishness" and establishing teamwork. During the past year 22 counties held a total of 139 community picnics, with an attendance of over 29,000.

The county agents leader reports to the United States Department of Agriculture that while at first attendance was somewhat small and included chiefly farm bureau members, gradually nonmembers attended also, so that most of the farm men, women, and children in each county have taken part in the picnics. The picnic has been the forerunner of organized project work in the communities. It establishes community interest and a community consciousness that is so essential as a basis of other community activities.

The organization, management, and arrangement for picnics, dinners, and recreational gatherings have been almost wholly in charge of leaders in the various communities. The general plan has been for county extension workers to meet with the community chairman and a small group of leaders to plan out all arrangements in detailed written form. The chairman assigned particular duties to individuals, appointed committees to choose and lay out picnic grounds or to arrange a dinner or sports. The community picnic is now looked upon as a permanent feature of county extension work in Montana.

So severe has been the two-year drought in the lake country of North Dakota, reports a representative of the Biological Survey of the United States Department of Agriculture, that some of the lakes are entirely dry and others are reduced to alkaline flats.

Hogs on Soiling Crops Demonstration Return Profit in Spite of Low Prices

No less than 2,000 farmers, it is estimated, have been shown a hog demonstration in Covington County, Ala. The county agent started last year the system on which this demonstration was based, when cotton was abnormally high and hogs so low that farmers were not making money on them the way they were producing them. He found a man conspicuously located who was willing to give special attention the year around to hogs, which were to be raised on soiling crops, together with a small amount of grain.

Thirty Acres Carries 10 Brood Sows.

The farmer making the demonstration offered to devote 30 acres to it. He bought 10 brood sows and a good young boar and put up the proper houses and fences. The 30 acres were divided into four fields of equal size and planted with a succession of crops to be grazed. The program of crops followed was that recommended at a conference of farmers, bankers, and State and county agents.

The first field was planted January 1, 1920, to oats and Canadian peas. Later the county agent recommended leaving Canadian peas out and using rye in the first field instead. The hogs were turned on this March 1 for two months. Five of the sows had pigs at the time they began to graze. The hogs were moved for May and June to the next field, where sudan grass and millet had been planted April 1.

In July and August the third field was used. It was planted to corn and Spanish peanuts during the first half of March. From this crop the hogs went in September and October to soy beans, planted the middle of May as the second crop in the first field. The second field, replanted July 1, was ready for November and December with sweet potatoes. By January 1 the rye and oats sowed in field No. 4 on October 1 were ready for the hogs, and so on the year around.

A glance at the table below shows the rotation used for both plantings in each field. The time and quantity planted and the month the crop was ready to be grazed are also given.

The 30 demonstration acres and 10 sows cleared approximately $500 the first eight months. But the important object of this demonstration was to have a place to show farmers how they could raise hogs on soiling crops and have a few matured hogs ready for market every month in the year. About 20,000 copies of this program was sent out to farmers in southeast Alabama, and it is expected that 100 or more such systems will be started in the county next winter.

Rotation Followed in Each Field.

	Kind of crops.	Way to plant.	Seed per acre.	Time of planting.	Time of grazing.
FIELD NO. 1.					
First planting	Canadian peas or rye and oats	Broadcast	1½ bushels peas or 1 bushel rye, 2 bushels oats.	Jan. 1	March and April.
Second planting	Soy beans	30-inch rows	3 pecks	May 15	September and October
FIELD NO. 2.					
First planting	Sudan grass and millet.	24-inch rows	5 pounds, 1 peck	Apr. 1	May and June.
Second planting	Sweet potatoes	3-foot rows	8,000 slips	July 1	November and December.
FIELD NO. 3.					
First planting	Corn and Spanish peanuts.	3½-foot rows	1 gallon, 1 bushel.	Mar. 1 to 15	July and August.
Second planting	Rye and oats	Broadcast	1 bushel rye, 1½ bushels oats.	Oct. 1	January and February.
FIELD NO. 4.					
First planting	Rye and oats	Broadcast	1 bushel rye, 1½ bushels oats.	Oct. 1	January and February.
Second planting	Corn, running peanuts, velvet beans.	4-foot rows	½ gallon corn, 3 pecks peanuts, ½ gallon beans.	Apr. 15	November and December.

Birds Are Beneficial to Agriculture For They Hold Many Pests in Check

The sparrow is a beneficial bird, says the Biological Survey, United States Department of Agriculture, and should not be regarded as a pest. The single exception to the department's indorsement is the pesky English sparrow of that species, "usually a nuisance and often injurious," and, says the department in a booklet, Farm Help from the Birds, "it must be remembered that the introduced English sparrow is but one member of the large family of sparrows and its habits are by no means characteristic of the native species."

Few Birds Classed as Injurious.

They are essentially seed eaters, the sparrows, but they consume also a fair proportion of insects, the department finds, and in general must be regarded as beneficial. Separating the sheep from the goats in the feathered kingdom of common knowledge to the farmer, the department places among the bad birds the jays, crows, ravens, and blackbirds, a corporal's guard compared with the army of good birds, of aid to the farmer, placed in the other classification. Even the bad denizens of the air have some good in them, says the department, and the damage they do the farmer is largely because of overpopulation in the feathered ranks. Of that class, the department says:

"It would seem a good policy to accord them the same treatment long given the common crow. The crow is not specially persecuted; neither is it protected. About the best that can be said of birds of this family is that on the average they do about as much good as harm."

Owls Perform Useful Service.

"Owls as a group have long been persecuted by man, but never has persecution been more unjust," says the Biological Survey. More than 50 varieties of owls feed on a great variety of rodents and have useful habits, the booklet continues. In Washington, D. C., the survey recently determined what 675 barn owls had for dinner. Here is the menu, by variety and number of dishes consumed: Meadow mice, 1,119; house mice, 452; house rats, 134; other small mammals, 3 per owl. And the service done man by the barn owl, the booklet says, is typical of that performed by hawks and owls in general. An occasional chicken is consumed, but this loss is far outweighed by the destruction of harmful rodents.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended October 12, 1921:

The Peach Borer: How to Prevent or Lessen Its Ravages. By A. L. Quaintance, Entomologist in Charge, Fruit Insect Investigations. Pp. 14, figs. 12. Contribution from the Bureau of Entomology. October, 1921. (*Farmers' Bulletin 1246.*)
This bulletin treats of the paradichlorobenzene treatment for the peach borer, and is suitable for general distribution.

Western Sneezeweed (Helenium Hoopesii) as a Poisonous Plant. By C. Dwight Marsh, Physiologist in Charge of Investigations of Stock Poisoning by Plants, A. B. Clawson, Physiologist, James F. Couch, Pharmacological Chemist, and Hadleigh Marsh, Veterinary Inspector. Pp. 46, pls. 2, figs. 5. Contribution from the Bureau of Animal Industry. (Professional Paper.) Oct. 11, 1921. (*Department Bulletin 947.*) Price, 10 cents.

Standard and Tentative Methods of Sampling and Testing Highway Materials. Recommended by the Second Conference of State Highway Testing Engineers and chemists held at Washington, D. C., February 23 to 27, 1920. Pp. 98, figs. 37. Contribution from the Office of Pubic Roads. October 10, 1921. (*Department Bulletin 949.*) Price, 25 cents.

The Mexican Whorled Milkweed (Asclepias Mexicana) as a Poisonous Plant. By C. Dwight Marsh, Physiologist in Charge of Investigations of Stock Poisoning by Plants, and A. B. Clawson, Physiologist, Pathological Division. Pp. 16, pls. 2, fig. 1. Contribution from the Bureau of Animal Industry. (Professional Paper.) Oct. 6, 1921. (*Department Bulletin 969*). Price, 5 cents.

Pine-Oil and Pine-Distillate Product Emulsions: Method of Production, Chemical Properties, and Disinfectant Action. By L. P. Shippen, Bacteriologist, and E. L. Griffin, Assistant Chemist, Insecticide and Fungicide Laboratory, Miscelleaneous Division, Bureau of Chemistry. Pp. 16. Contribution from the Bureau of Chemistry and the Insecticide and Fungicide Board. October 7, 1921. (*Department Bulletin 989.*) Price, 5 cents.

Status and Results of Home Demonstration Work, Northern and Western States, 1920. By Florence E. Ward, In Charge Extension Work for Women. Pp. 30, figs. 6. Contribution from the States Relations Service. Sept., 1921. (*Department Circular 178.*) Price, 5 cents.

Status and Results of County Agent Work, Northern and Western States, 1920. By W. A. Lloyd, In Charge of County Agent Work. Pp. 36, figs. 9. Contribution from the States Relations Service. Sept., 1921. (*Department Circular 179.*) Price, 5 cents.

Flowering and Fruiting of Plants as Controlled by the Length of Day. By W. W. Garner and H. A. Allard, Bureau of Plant Industry. Pp. 24, il. (*Separate 852, Yearbook, 1920.*) Price, 5 cents.

Death to the Rodents. By W. B. Bell, Bureau of Biological Survey. Pp. 18, il. (*Separate 855, Yearbook, 1920.*) Price, 5 cents.

Soil Survey of Palo Alto County, Iowa. By A. M. O'Neal, Jr., and W. E. Tharp, of the U. S. Department of Agriculture, and F. M. Russell, C. E. Watts, and G. H. Artis of the Iowa Agricultural Experiment Station. Pp. 36, fig. 1, map. (*From F. O. Soils, 1918.*) Price, 15 cents.

Journal of Agricultural Research. (For sale only.)
Vol. 22, No. 1. October 1, 1921. Contents: Occurrence of Quercetin in Emerson's Brown-husked Type of Maize. (G-244). By Charles E. Sando and H. H. Bartlett.—Biological Analysis of the Seed of the Georgia Velvet Bean, Stilzolobium deeringianum. (Ark-1). By Barnett Sure and J. W. Read.—Effect of Soil Temperature upon the Development of Nodules on the Roots of Certain Legumes. (G-245). By Fred Reuel Jones and W. B. Tisdale.—Influence of the Period of Transplanting Western White Pine Seedlings upon Their Behavior in Nursery and Plantation. (F-6). By E. C. Rogers.—A Dryrot Canker of Sugar Beets (Utah-14). By B. L. Richards. Pp. 1-52, pls. 9, figs. 26. Price, 15 cents.

Monthly Weather Review. Vol. 49, No. 7. July, 1921. 379-433, figs. 17, charts 10. Price, 15 cents a copy, $1.50 a year. Payable to the superintendent of documents.
Special Articles: Improved gages for precipitation. By S. P. Fergusson.—A Warm Winter (1920-21) Followed by a Warm Summer. By A. J. Henry.—The Earth's Wind-Belts as Factors of Climate. By L. W. C. Bonacina.—Climate and Vegetation of the High Pamir. By O. Olufsen.—Climate and Alfalfa Seed. By J. C. Alter.—Concerning a Graphical Device for Pressure Reduction. By C. L. Meisinger.—London Smoke Fogs. By J. S. Owens.—Remarkable Aurora of May 14-15, 1921. By H. Lyman.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the superintendent of documents direct, not to the Department of Agriculture.

If Herd is Free from TB, Why Not Let People Know it?

It pays to advertise a worth-while article. In Pocatello, Idaho, the inspector in charge of the tuberculosis-eradication work of the Bureau of Animal Industry, United States Department of Agriculture, came upon a dairyman whose herd had been tested and was under Federal and State supervision. He turned these facts to good account in advertising his wares, and greatly increased his business.

> "Why pay your dairyman for keeping poor cows when you can get MILK from the MODERN DAIRY'S pure, healthy, clean cows at $3.75 per month, cash in advance? Cows all under Federal TB test. Milk all guaranteed pure and clean."

This poster was widely circulated in the district, and on his milk tickets the fact is reiterated that "Our dairy cows are tuberculosis-free by Government test." These methods have resulted in many other dairymen in the Pocatello district applying to the tuberculosis-eradication office at Boise, Idaho, for the testing of their herds.

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Weekly News Letter

Published by the
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Washington

Vol. IX NOVEMBER 2, 1921 No. 14

FEDERAL HIGHWAY AID HELPS SOLVE UNEMPLOYMENT PROBLEM

Conferees Agree Upon Bill Appropriating $75,000,000 for Federal Aid in Road Construction.

One-third of It Will Be Available for Distribution to States When Bill Becomes Law—States Must Put Up at Least as Much Money.

Funds making possible the employment of from 300,000 to 350,000 men for one road-building season are appropriated by the Federal highway bill at present in conference and expected to pass Congress within the next few days.

The bill agreed upon by the conferees carries a $75,000,000 appropriation, of which $25,000,000 is to be available for distribution among the States as Federal aid in road construction when the bill becomes law and $50,000,000 six months later. In addition, $5,000,000 is to be immediately available for national-forest roads and $10,000,000 more on July 1, 1922.

Will Keep Many Men at Work.

The Federal-aid appropriation will be distributed and administered under the supervision of the Bureau of Public Roads, United States Department of Agriculture. In continuing the operation of the plan the Government is taking a step that should have far-reaching effect in relieving the present unemployment situation, and in some States it will make possible the continued employment of men who otherwise would be thrown out of work and thus swell the ranks of the idle.

This Federal money is to be matched by funds under the direct control of the State highway department. When so matched—and in many cases the States have taken action and are simply awaiting the availability of the Government appropriation—it is estimated that it will make possible road work which will give employment to from 300,000 to 350,000 men for six months distributed over the period required to spend the money. This estimate of employment includes men employed on actual construction, and in addition men employed in producing and hauling materials.

To get the benefit of Federal road-building funds each State must appropriate at least as much money as is allotted to it by the Federal Government, with the exception of a few States having unoccupied public land to the extent of more than 5 per cent of the State's area. In these cases the State's share is reduced. The State's share must be under the direct and sole control of the State government. No money controlled in any way by county or local officials can be used to match Federal funds. Provision also must be made for the maintenance of all roads built in participation with Federal aid by the State government.

States Will Control Own Funds.

Some States have not had State-controlled funds heretofore, and have been matching Federal-aid money under the previous law by using county or local funds derived from bond issues or the proceeds of automobile taxes. The new law will provide that if this practice is continued the local funds must be placed under the control of the State, subject to no withdrawal. In most States, however, the question has been agitated, and there have been proposals for raising State-controlled funds for road building. In view of the need for good roads, the unemployment situation, and the fact that a State's allotment will be appor-

(Continued on page 8.)

FAVORABLE AGRICULTURAL OUTLOOK FOR 1922.

In a telegram to the editor of a western agricultural paper, Secretary Henry C. Wallace made the following encouraging statement:

"The agricultural outlook for 1922 is favorable. We should see marked improvement over conditions as they have existed this year. Time will be required for full recovery, but we have reached the bottom and are on the upgrade. The most important things farmers should work for are the perfection of their cooperative selling organizations with a view to putting the marketing of farm products on a thoroughly sound business basis, and the careful study of needs of the consumer and intelligent adjustment of production to these needs."

FOREIGN CROP PROSPECTS ARE GENERALLY ENCOURAGING

Harvesting Being Done Under Favorable Weather Conditions Which Also Permit Fall Seeding of Grains.

Abundant Rains Assure Good Stand of Wheat and Rye in Northern Hemisphere—Cotton Good in India, But Below Normal in Egypt and China.

The preparation of the soil and the seeding of winter grains has continued to make rapid progress throughout the northern hemisphere, according to reports to the Bureau of Markets and Crop Estimates, United States Department of Agriculture. The abundant moisture has greatly facilitated fall plowing and the seeding of winter wheat and rye in Canada. Conditions have generally been favorable for seeding in the United States and early sown fields of wheat and rye in the Northern and Central States are up to a good stand and vigorous growth reported. Rain is needed in some districts of the far Western States to insure proper germination. The present prospects indicate that the acreage for the country, as a whole, will be up to the average.

Average Grain Acreage Sown in Europe.

Recent rains have greatly facilitated plowing in France and Germany, although more rain is needed to insure sufficient moisture for germination. The present prospect indicates that an average or slightly above average acreage of fall grains will be sown in all western Europe. The monsoon is reported to have continued active in most of India, and in the Punjab region the recent rains have greatly improved conditions. Crops are generally good and the present outlook indicates that a large acreage of wheat and other grain will be sown.

Abundant rainfall has recently occurred over the entire grain producing section of Argentina and will greatly benefit crop prospects.

The outlook for next season's crops is very promising in British South Africa

because of ample rains well distributed over the country. If the present promising conditions continue, the production may exceed the harvest of any recent years. Corn is looking exceptionally good. Wheat was sown under very favorable conditions and the area for the coming season is 839,000 acres compared with 823,000 acres in 1920–21.

Rain has been abundant throughout Australia and prospects continue good to excellent. The area sown with wheat for 1921–22 is approximately 9,445,000 acres compared with 9,082,000 acres in 1920–21, an increase of 4 per cent, but 2 per cent below the average of the previous five years.

Thrashing of this season's crop has been delayed in the prairie provinces of Canada by heavy rains and snow but damage to crops has been minimized by the cool dry weather which followed. Rainy weather has also interfered with thrashing in some sections of Great Britain, especially in Scotland. Weather conditions have been favorable for thrashing in most of western Europe and recent returns of the yield confirm earlier favorable estimates for winter cereals, which equal or exceed those of last year. The yield of spring sown grains is only fair and the quality variable, though occasional good yields are reported. The hot, dry weather up to mid-August has injured the corn crop in all of western and central Europe and a poor yield is reported.

Cotton in India, Egypt, and China.

The first cotton forecast for India (which covers 79 per cent of the total area but does not embrace late plantings as these had not yet commenced) states that the present condition of the crop is generally good. The preliminary or August estimate of the area for the 1921–22 crop is 11,976,000 acres compared with 13,293,000 acres last year at the corresponding period. Owing to favorable rains at sowing time, the early plantings in Bombay, Central Provinces, Berar, Hyderabad, and Madras, which comprise fully two-thirds of the total cotton area of India, have been quite large and it seems probable that the ultimate cotton area for 1921–22 will approximate 20,000,000 acres compared with 21,000,000 acres in 1920–21.

The cotton crop in Egypt is generally backward because of an unfavorable growing season and damage from the pink bollworm. The average yield per acre will be below normal and the quality variable.

A special report from the Chinese Cotton Mill Owners' Association at Shanghai, China, gives the area of cotton in that country in 1920 as 4,300,000 acres and in 1919 as 4,751,000 acres. The production in 1920 is estimated as equivalent to 1,868,000 American bales of 500 pounds gross weight. The acreage planted in 1921 is reported as about the same as in 1920, but the present condition of the crop is not very promising because of a long rainy season. About one-third of the crop is rotted or injured.

Potatoes Good But Apples Light.

The digging of potatoes and the harvesting of root crops has been general in much of the Northern Hemisphere. The potato crop in the Province of Ontario, Canada, is turning out very much better than was expected early in the season, although it will still be less than the average. Apple picking has become general in Canada and the United States, but on the whole the yield is considerably below average.

The potato and root crops, including sugar beets of western Europe, have been damaged by the long summer drought and the yield in general is only fair, as the recent rains came too late to be of any material benefit. The fruit crop in Great Britain is generally below normal. The yield of grapes in France, including Alsace-Lorraine, Hungary, and Italy, is up to the average and the quality good. The condition of the olive crop in Spain and France is very good, but the condition of the crop in Italy has deteriorated because of the great heat in August.

A cablegram received October 19 from the department's agricultural commissioner at London gives the following preliminary Government report for Scotland's crops and live stock for 1921; figures for 1920 are in parentheses: Wheat acreage, 65,000 (54,000); barley, 171,000 (204,000); oats, 1,011,000 (1,032,000); rye, 6,000 (7,000); potatoes, 154,000 (162,000). Number of animals on farms in June, 1921, with 1920 figures in parentheses: Horses, 216,000 (214,000); cattle, 1,141,000 (1,166,000); sheep, 6,646,000 (6,361,000); swine, 145,000 (129,000).

Sneeze Weed, a Poisonous Plant to Sheep on Many Western Ranges

A plant poisonous to sheep on the ranges, and for which no practical method has been discovered either for eradication or for cure of the resulting disease, is described in a recent bulletin of the United States Department of Agriculture. The weed is most troublesome in Utah, Colorado, Arizona, and New Mexico and in the eastern half of southern California, as well as in scattered areas in eastern and western Nevada, southeastern Oregon, southeastern Idaho, and northwestern Wyoming.

Experiments Cover Five Years.

It was first reported to the department in 1903 that a mysterious disease, characterized by vomiting, wasting away, and death, was attacking sheep in Utah. The disease was at first attributed to Zygadenus (death camas), but several years later department botanists observed that sneeze weed was usually found on ranges occupied by the affected sheep. Subsequent experiments covering 5 years fastened responsibility upon the sneeze weed. No effective remedy has been found, and sheep which do not die retain symptoms as long as 2 or 3 years.

The weed is a strong perennial, growing to a height of 1 to 3 feet, with one or several stems. The plant, when young, is often hairy or woolly, particularly the stems. There may be one or several flower heads, which are 2 to 3 inches broad with ray flowers of an orange color. The seeds are numerous and hairy. The plant occurs at elevations of 5,200 to 12,000 feet. Its best habitat is on sunny slopes of the southern spruce belt in moist and in well-drained soil. From the color of the flowers it is sometimes called "yellow weed," and some stockmen call it sunflower, but in Utah it is most commonly known as sneeze weed.

The weed seems impracticable of eradication. Diggings out costs about $40 an acre and cutting with a scythe only stimulates growth. Department scientists, therefore, see the only relief in acquainting stockmen with the appearance and character of the plant and warning them to keep their sheep away from infested areas.

PUBLIC WELCOMES FINE BULLS.

The farmers around Starkville, Miss., organized two bull associations at the same time, and bought 10 new first-class bulls. When the bulls came to Starkville there was great rejoicing and a public festival, with music and speeches and visiting dairymen.

U. S. Dependent Upon Foreign Countries For Pulp Wood and Paper Supply

Two-thirds of the news print used in the United States in 1920 was made from wood grown on foreign soil. Out of more than 4,500,000 tons of wood pulp consumed for all purposes, 35 per cent came from foreign countries. Over $191,000,000 was paid for the pulp wood, wood pulp, and paper imported. To this extent the United States has become dependent upon markets outside its control.

This country can no longer draw its supply from our rapidly disappearing eastern forests. As a result primarily of forest depletion, the cost of pulp wood rose more than 110 per cent in the 5-year period, 1916–1920, and of wood pulp 35 per cent since 1918. These and other facts are presented in a bulletin "Pulp Wood Consumption and Wood Pulp Production, 1920," prepared by the Forest Service, United States Department of Agriculture, in cooperation with the American Pulp and Paper Association of New York.

Domestic Production No Longer Adequate.

Prior to 1909 practically all the paper consumed in this country was manufactured here. This is no longer true. The United States is now becoming more and more an importing Nation, and the paper-making industry has grown until its capitalization approaches the billion dollar mark.

"The trouble in brief," says the bulletin, "is that we have mills without forests in the East and forests without mills in the West." In New England and New York, where the forests have been largely worked out, there is the heaviest concentration of mills. In Alaska, where there is enough spruce and hemlock to supply present American newsprint requirements indefinitely, there is only one mill. The industry has remained stationary in the East while the lumber industry has moved West.

"In Minnesota, for instance, where domestic spruce forms 95 per cent ef the consumption, pulp wood cost $10.40 per ton less than in New York. If New York pulp mills could have brought their spruce from native forests at a saving of $10 a cord, the savings on their imports alone would have been $5,000,000 during the year 1920."

Expensive Eastern mills can not be moved West nor can the great forests of Alaska and the Pacific slope be set down in New England and New York. Nor can the United States count upon reducing the amount of pulp wood necessary to meet present requirements. Further, Canada can not be depended upon indefinitely as a source of supply, for Canadian forests are no more limitless than those of the United States.

Eastern Lands Must Be Reforested.

The remedy is twofold; locate more mills on the Pacific slope and reforest the East.

"Reforestation will take not only skill, energy, and money," say the foresters, "but most serious of all, many years must elapse before the East can be put on a thoroughly self-supporting basis. Yet there is no choice left to us. The work must be undertaken. We must have pulp, and for every year of delay we must pay increasingly heavy penalties for neglecting to restore the forests as fast as the wood is consumed."

As the result of unregulated lumbering, it is pointed out, followed by fire, more than 60,000,000 acres of potential forest lands, most accessible to Eastern and Lake State mills, are now producing nothing or supporting a growth of little use except for firewood. If they were producing only a third of a cord of pulp wood an acre every year, the total yield would be 20,000,000 cords or approximately twice the amount needed to supply the entire American consumption at the present time.

Wood-pulp production in 1920 is placed at 3,821,704 tons and the average value at the mill at $72.20 per ton, an increase of $19.52 per ton, or 37 per cent over 1918 figures.

INSPECT FEDERAL SEED LOANS FOR IRREGULAR PRACTICES

Employment of field inspectors to aid in collecting the Federal loans made to many grain farmers in the Northwest last spring for the purchase of seed has been authorized by Secretary of Agriculture Wallace. They will be a part of the organization of the branch office opened at Grand Forks, N. Dak., recently for collecting the loans. With this as their headquarters, the inspectors will travel in the counties where the seed loans were made investigating individual instances of irregularity in obtaining and in paying the loans. They will investigate reports of crop failures, especially in localities where crops were generally good, verifying the statements in applications for extension of loans by borrowers who harvested a fair crop but who are unable to pay their debt to the Government and have enough left for seed and living expenses through the next crop season.

The Government, it is said, expects full and prompt settlement from borrowers who are able to pay off their loans, and where necessary will enforce its prior-crop liens. The Federal law provides severe penalties for misrepresentation in connection with seed loan applications and settlements. James R. Williams, of the solicitor's office, and Chalmers T. Forster, of the inspection office, of the United States Department of Agriculture, have been appointed as field inspectors. Up to September 24 remittances in settlement of seed-grain loans amounting to $16,341 had been received and forwarded by the Grand Forks office. Total remittances to October 1 were $34,075.82.

PARA-DICHLOROBENZENE KILLS ANCIENT PEACH-TREE ENEMY

The so-called peach-tree borer has constituted one of the principal drawbacks to the successful cultivation of the peach for 150 years, and only within 5 years have effective and practical means of control been discovered.

The para-dichlorobenzene treatment developed by E. B. Blakeslee of the Bureau of Entomology, United States Department of Agriculture, is described in Farmers' Bulletin 1246, "The Peach Borer: How to Prevent or Lessen Its Ravages," by Dr. A. L. Quaintance, entomologist in charge of fruit insect investigations.

The peach borer is the larva of a beautiful clear-winged moth. It feeds on the inner bark at the base of the tree or on the adjacent roots, seriously injuring and frequently killing the trees attacked. Few American insects have been more experimented with by entomologists and others than the peach borer.

As a result of experiments begun by the department in 1915, it was found that this pest could be largely destroyed by the application of para-dicholorobenzene, which is a volatile poison.

The chemical is applied in the fall around the base of the tree. The soil is first leveled off and a band of "Paradichlor" is applied to the soil on a continuous band about 2 inches from the tree trunk, using it at the rate of 1 ounce per tree. After the chemical is applied the soil is covered with two or three shovelfuls of earth. The vapor from the chemical permeates the soil and kills the larvæ in their burrows.

The bulletin treats briefly of the life and habits of the insect; of the "worming" method of destroying the borers where there are only a few trees involved, and of the "Paradichlor" method The bulletin may be had on application to the Department at Washington.

Weekly News Letter

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WAR FINANCE FUNDS WILL HELP LIVE-STOCK INDUSTRY

"A number of important finance companies are being organized throughout the country to assist in the financing of the live-stock industry with the cooperation of the War Finance Corporation," said Eugene Meyer, jr., Managing Director of the War Finance Corporation, in a recent statement. "During my recent trip to the West," he continued, "I had the opportunity of meeting with representative bankers and live-stock men in many States, and it was clearly apparent that new finance companies are immediately needed in connection with the live-stock industry. Utah has responded to the need by forming a company, with a subscribed capital of $500,000, to make live-stock loans in Utah and Idaho. Wyoming also has formed a loan company, with $300,000 paid-up capital, and is already doing business. The War Finance Corporation loan of $215,000, announced recently, was made through this company. Western Nebraska bankers have organized a $200,000 live-stock loan company."

The statement continues:

"At a recent meeting at Fort Worth of representative business men of the State of Texas it was decided to organize a company with large capital to make stock loans. Subscriptions amounting to $750,000 were pledged at this meeting, and it is hoped to receive total subscriptions of $1,500,000. Other companies are in process of formation in other districts. Representative Oklahoma bankers have agreed to form a live-stock loan company in that State.

"Through the organization of these companies to supplement existing loan companies and banks, the War Finance Corporation may be able to make its funds available throughout the live-stock sections of the country promptly on a large scale. It is immediately necessary to stop the marketing of immature live stock and to save the breeding herds."

70 BILLION FEET OF TIMBER IN TONGASS FOREST, ALASKA

The original estimate of 70,000,000,000 feet, board measure, of merchantable timber in the Tongass National Forest, Alaska, made some years ago, probably understates the tremendous timber resources of that reservation, according to a report by E. A. Sherman, associate forester, of the United States Department of Agriculture. The original estimate was made by a former supervisor whose pioneer work as a forester in that region has well stood the test of time. Six years ago Mr. Sherman followed about 1,500 miles of Tongass shore line. What he saw on that cruise satisfied him that the estimate, which he had previously regarded as high, was not unreasonable.

"On my trip to Alaska this year," Mr. Sherman reports, "I visited other parts of the forest not seen in my previous inspection, with the result that I am now fully convinced that the forest will yield the full estimate and more." The Tongass forest alone under proper forestry methods, it is estimated, could furnish the entire Nation a supply of wood pulp sufficient to yield approximately 2,000,000 tons a year perpetually, or enough to manufacture one-third of the pulp products now consumed in the United States. The Tongass forest is one of two national forests in Alaska, and occupies the greater part of the southeastern Panhandle.

OX WARBLE SHOWN IN FILM CAUSES $50,000,000 LOSS

The ox warble has at last been made to appear in its true rôle. This pest plays the villain in a recently released United States Department of Agriculture motion picture, "The Ox Warble—A $50,000,000 Tune."

The screen story of the ox warble tells of a farmer who observes a falling off in milk production from his herd and is unable to ascertain the reason. He calls the county agent and tells his troubles. The county agent discovers the presence of the pest in the herd, and summons the "Government bug man." The Government entomologist goes over the herd, uncovers the villain, gives the farmer full details regarding the life history of the insect and instructions how to rid the herd of the expensive and unwelcome guest.

In visualizing the subject many unusual scenes have been included. The pictures present a graphic description of the insect and the damage caused by it. The annual loss in hides, milk, and beef due to this parasite is estimated by the Bureau of Entomology to be far in excess of $50,000,000. The film urges community cooperation in fighting the pest. Prints of the film may be borrowed free for short periods from the department or may be purchased for permanent use at a cost of approximately $40 each.

WAR EXPLOSIVES USED LARGELY BY STATES FOR ROAD WORK

Trinitrotoluol, one of the most efficient of war-time explosives, has become, by adaptation, one of the most desirable agencies for the peace-time task of road construction, according to reports received from many States by the Bureau of Public Roads of the United States Department of Agriculture. The use of this powerful explosive is becoming general throughout the Union wherever highways are under construction. Out of the surplus war materials turned over by the War Department to the Department of Agriculture and distributed by the Bureau of Public Roads among the various States, approximately 20,000,000 pounds of T. N. T. has found its way to the road builders' supply houses. This is more than four times as much as the total of powder of all grades distributed by the department among the States.

The quantity of T. N. T. distributed up to September 15, among the States, was 19,613,295 pounds. In addition there has been distributed 1,798,988 pounds of blasting powder and 2,781,313 pounds of hand grenade powder. Among other materials of this nature distributed among the States were 6,566 pounds of dynamite, 267,600 pounds picric acid, 938,409 detonators, 131,674 exploders, 75,968 electric blasting caps, 27,840 feet of fuse, 7,340 yards of detonating cord, and 198 tampers.

DISTRIBUTE 1918 EXCESS WOOL PROFITS.

In its work of distributing to growers the 1918 excess wool profits collected from dealers, the United States Department of Agriculture, during the month of September disbursed $23,045.56 and mailed out 7,721 checks. There still remains on hand for distribution $336,731.94, of which $1,389.49 was collected during the past month. In addition, cases awaiting settlement involve the sum of $659,019.41.

U. S. Lumber Cut Decreased in 1920; Western States Alone Show Increases

The lumber cut of the United States in 1920 was 33,798,800,000 feet, which is 2.2 per cent less than in 1919 and 27 per cent less than the peak in 1907.

The average price of lumber at the mill increased to $38.42 per 1,000 feet, which is a rise of 150 per cent since 1910. The aggregate value of the cut is $1,299,000,000. These are the highest annual valuations ever recorded, but do not indicate present conditions. They merely reflect the extremely high peak in the post-war lumber prices, which was passed in the first quarter of 1920.

Highest Prices Reached in 1920.

These are the principal statistics obtained by the Forest Service, United States Department of Agriculture, in its 1920 canvass of American sawmills. They are based upon reports from 15,978 active mills out of 23,243 estimated to have been in operation. Several thousand mills cutting less than 50,000 feet were not tabulated, though allowance was made for their cut. Comparisons with 1919 are published by permission of the Bureau of the Census, United States Department of Commerce.

The tables show that the States which increased their cut are all in the Pacific coast group and the Rocky Mountains. Washington is first, as usual. Oregon attains second place for the first time, displacing Louisiana from a position held for 15 years, while California takes rank among the first five, displacing another southern yellow pine State.

Oregon Cuts More Than Louisiana.

In 1920 the Pacific and Rocky Mountain groups of States, combined, produced 35.6 per cent of the cut. The eight States of the southern pine group produced 34 per cent, while all the rest of the United States produced 30.4 per cent.

The combined production of Douglas fir and western yellow pine, which in 1919 was less than 60 per cent of the amount of southern yellow pine cut, in 1920 became 83 per cent. This relative increase in the western species arises in part from the decrease in southern pine production, which amounted to 15 per cent. The conditions reported by southern operators, arising directly or indirectly from the World War, were so adverse that the southern pine may be expected to recover part of the lost ground during the next few years. But the indications of the statistics are that the supremacy in lumber production held by the southern pine States has passed the zenith and is moving to the West.

Production of lumber, by principal States.

State.	M feet b. m.		Per cent (increase or decrease).
	Computed, 1920.	Reported, 1919.	
United States	33,798,800	34,552,100	− 2.2
Washington	5,525,000	4,961,200	+11.0
Oregon	3,317,000	2,577,400	+29.0
Louisiana	3,120,000	3,163,900	− 1.0
Mississippi	2,224,000	2,390,100	− 7.0
California	1,513,000	1,259,400	+20.0
Arkansas	1,452,200	1,772,200	−18.0
Alabama	1,439,200	1,798,800	−20.0
Texas	1,328,800	1,379,800	− 4.0
North Carolina	1,246,700	1,654,400	−25.0
Wisconsin	1,059,900	1,116,300	− 5.0
Virginia	1,014,400	1,098,000	− 8.0
Florida	1,000,900	1,137,400	−12.0
Idaho	970,000	765,400	+27.0
Tennessee	779,800	792,100	− 2.0
Georgia	761,800	894,000	−15.0
Michigan	749,800	875,900	−14.0
West Virginia	697,600	763,100	− 9.0
South Carolina	610,500	621,700	− 2.0
Minnesota	576,300	699,600	−18.0
Pennsylvania	520,000	630,500	−18.0
Maine	505,600	596,100	−15.0
Kentucky	421,100	512,100	−18.0
All other	2,965,200	3,092,700	− 4.0

Production of lumber, by principal species.

Species.	M feet b. m.		Per cent (increase or decrease).
	Computed, 1920.	Reported, 1919.	
United States	33,798,800	34,552,100	− 2.2
Softwoods	26,809,500	27,407,200	− 2.2
Yellow pine	11,091,000	13,062,900	−15.0
Douglas fir	6,960,000	5,902,200	+18.0
Western yellow pine	2,290,000	1,755,000	+30.0
Hemlock	1,850,000	1,755,000	+ 5.0
White pine	1,500,000	1,723,700	−13.0
Spruce	825,000	980,000	−16.0
Cypress	625,000	656,200	− 5.0
Redwood	476,500	410,500	+16.0
Larch	390,000	388,100	+ .5
White fir	280,000	223,400	+25.0
All other	522,000	550,200	− 5.0
Hardwoods	6,989,300	7,144,900	− 2.2
Oak	2,500,000	2,708,300	− 8.0
Maple	875,000	857,500	+ 2.0
Gum	850,000	851,400	− .2
Chestnut	475,000	545,700	−13.0
Birch	405,000	375,100	+ 8.0
Yellow poplar	350,000	328,500	+ 7.0
Beech	325,000	359,000	−10.0
Elm	225,000	194,400	+16.0
Basswood	195,000	183,600	+ 6.0
Tupelo	180,000	143,700	+25.0
All other	609,300	597,700	+ 2.0

SUGAR-BEET PRODUCTION REACHES GREAT MAGNITUDE

The sugar-beet industry of the United States produced more than 1,000,000 tons of sugar and the 106 factories, 97 of which were in operation in 15 States, paid American farmers more than $99,000,000 for their beets in 1920.

In a comprehensive new bulletin, No. 995, "The Sugar Beet Industry in the United States," the United States Department of Agriculture says that almost any fertile soil capable of producing good yields of other crops will, if properly handled, produce good sugar beets. This statement, however, is restricted by considerations of climate, moisture, and topography as related to the question of producing enough beets of the requisite sugar content within reasonable hauling distance to maintain a sugar-beet factory.

The bulletin reviews the history of the sugar-beet industry from the first mill, built in 1870 at Alvarado, Calif.; analyzes soil, climatic and topographic requirements; and deals at length with the necessary equipment, best methods of planting and cultivation; the important relation of the sugar-beet to the live-stock industry; the management of parallel and rotating crops; the labor problem; insect and disease enemies of sugar beets; and the business of selling beets to the sugar manufacturers. "The successful production of sugar beets on any farm depends to a great extent upon the temperament of the farmer and upon his attitude toward the production of this crop," says the bulletin, adding that the man who handles cows, especially dairy cows, is more inclined to take up the growing of such an intensive crop as sugar beets and is more apt to succeed in this line than the grain or forage crop man.

A list of more than 50 department publications on different phases of the beet-sugar industry is included in the bulletin, which may be had free upon application to the Department of Agriculture, Washington, D. C.

FARM WAGES STILL HIGH; FARM-PRODUCE PRICES LOW

Farm wages are still much above the rates of 1916, the year before the United States entered the World War, although they have declined some from the rates of 1920, the highest ever reached in this country, says the United States Department of Agriculture. A recent investigation made by the department shows that, by the month with board, the rate of 1921 is $29.48, as an average for the United States, a drop of 37 per cent from the $46.89 of 1920. In 1916, the rate was $23.25. By the month without board, the rate declined from $64.95 to $42.65, or 34 per cent, and yet this year's rate far exceeds the $32.83 of 1916.

Harvest wages by the day declined nearly as much in one year, from 1920 to 1921, or $3.60 to $2.12, as they gained in the four years 1916 to 1920, or $1.69 to $3.60. Without board, harvest wages shared in the general spectacular movement and rose from $2.07 in 1916 to $4.36

in 1920, followed by a decline to $2.80 in 1921.

Similarly with day wages on the farm outside of harvest, the rate, both with and without board, receded nearly as much from 1920 to 1921 as it gained from 1916 to 1920. The rate for 1921, as an average for the United States, is $1.60 with board and $2.17 without board.

While the farmer is paying high wages, he is also buying many things for use and consumption on his farm and by his family at high prices; and on the other hand, he is selling his products at very low prices and out of these sales he must pay his expenses, if he can. Compare the course of the prices received by him for his products with the course of the prices paid by him for 52 representative articles of common use on the farm, and with the course of the wages of farm labor by the month with board, beginning with 1913, the year before the war began, and with 1920 and 1921, July, for prices and the whole year for wages.

If each of the three items be represented by 100 for 1913, the price of crops and meat animals in 1920 was 212, wages were 219, and the price of the 52 articles commonly bought by farmers was 328. In other words, the price of crops and meat animals and the rate of wages had somewhat more than doubled, while the price of the things that farmers bought considerably more than trebled.

This year has seen great changes in the figures of 1920, very much to the disadvantage of the farmer, for although the price of crops and meat animals went down to 106 for July, or nearly the price of 1913, and the rate of farm wages went to 138, the price of the things bought by the farmer in July had declined only to 259. The price of crops and meat animals has approximately reached the level of 1913. Farm wages have declined from the 1921 peak, but are still high as compared with 1913. The price of the things the farmer has to buy is 159 points greater than in 1913, and the farmer is placed in the unenviable position of having to sell his products at around the 1913 level at the same time that he is forced to pay wages three-eights higher than in 1913, and for what he buys $2\frac{3}{8}$ times as much as he did in the prewar year covered.

STATES GIVING ATTENTION TO MARKETING FARM PRODUCTS

Thirty-eight States are now giving special attention to the marketing of farm products. In 31 of these States agencies to carry on this marketing work have been created by legislative or executive authority. In the remaining seven States the agencies are a part of some already existing cog in the State administration or are connected with the State agricultural colleges.

The market reports of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, are received direct by leased telegraph wire by a number of the States. The department also lends a large measure of cooperation to the States in the joint employment of specialists in standardization and inspection. Educational work concerning the marketing of farm products is being actively carried on in nearly all of the States with the aid of the department's extension specialists.

Market information is being stressed in 24 States; standardization work comes in for the lion's share of attention in 19 States; inspection of food products is kept to the fore in 13 States; and research work is the major activity in 12 States. Altogther 30 regular market reports and periodicals are issued by the marketing agencies of the 38 States. Six are published daily, 12 weekly, 4 semimonthly, and 8 monthly.

Spread of Mosaic Disease is Serious Menace to Western Potato Culture

A survey of the Western States conducted during the past summer by pathologists of the United States Department of Agriculture shows that unless adequate measures for the elimination of the mosaic disease of potatoes are taken immediately the work of potato seed improvement in the West will soon become extremely difficult, if at all possible. Being of an infectious nature, the disease is spread in the field throughout the summer by means of insects which carry it from diseased to healthy plants, and is also transmitted with the seed tubers from one generation to another.

Mosaic Reduces Yield About 30 Per Cent

There is no evidence that a plant once infected can recover and produce a healthy progeny at any time. On the contrary, the infected plants ordinarily tend to a very rapid deterioration, and under certain environmental conditions practically cease to produce tubers in the third or fourth generation. If only a partial weeding out of the worst cases is practiced, the situation may be somewhat improved, though not in all cases and by no means permanently. The mild and the medium stages of the disease left in the stock serve as perpetual sources of infection, and eventually the entire strain becomes diseased and is apt to "run out" completely.

It has been repeatedly demonstrated in the East that the average reduction of yield due to mosaic is about 30 per cent. Precisely the same effect of this disease was noted in the case of all the varieties grown in different Western States. Some remarkable instances were observed during the last two years of field observations carried on by the department in which the reduction of yield in individual hills was in direct proportion to the severity of the infection.

The potato acreage in certain irrigated sections of the West has been increased this year by one third as compared with that of the last year, yet the yield in these districts is only two-thirds of the normal. Many growers complain that where 300 sacks or more were raised to the acre in former years, only 100 to 150 sacks are obtainable now. This is in fields under good cultural conditions, showing good stands and a high freedom from fungus and bacterial diseases. The low yielding quality of the strains in question no doubt is principally a manifestation of mosaic. The need of good seed in the West is well recognized and is growing every year, yet only a meager quantity of even relatively good seed is obtainable.

There is very little, if any, hope of improving badly infected strains of potatoes, the department specialists think; therefore, prompt efforts should be made to locate the most healthy strains of the various important commercial varieties. Since there is no means at present of detecting mosaic on the tuber the search should be confined exclusively to the fields during the growing season. When the best strains are found they should further be improved by the annual elimination of all the diseased individuals.

Aid of Trained Specialists Must Be Sought

It is necessary to place this work in charge of highly trained specialists, since the identification of certain minute and peculiar characters of the disease requires a considerable experience and a great deal of pathological knowledge. Furthermore, manifestations of mosaic under the varied cultural and climatic conditions of the West are often very obscure and not yet fully understood.

Make Windows Tight With Weather Strips and Thereby Cut Down the Fuel Bills

Stopping up cracks around doors and windows is an important factor in cutting down the coal bill and keeping the rooms comfortable, according to Farmers' Bulletin 1194, Operating a Home Heating Plant, published by the United States Department of Agriculture. More fuel invariably is consumed in a house with loosely fitted windows than in one where the cracks are protected. In the windward rooms of some houses on particularly cold, windy days the leakage about window and door framing will be so great that the rooms can not be heated to a comfortable temperature, even by forcing the furnace to its limit.

Small Cracks Let in Much Air.

Tight-fitting windows, says the bulletin, are essential if leakage losses are to be kept down. Ordinary felt weather stripping helps to reduce this loss. Metal weather stripping is still better and aids materially in saving fuel. Tests have demonstrated that it is possible, by the use of metal weather stripping, to reduce by 88 per cent the leakage through a $\frac{1}{32}$-inch crack when the wind is blowing 15 miles an hour and by 83 per cent with a 30-mile wind.

The condition of the windows in a building, whether tight, loose, or just loose enough to rattle, plays a very important part not only in the comfort derived from a heating plant but more noticeably in the annual cost of operation. Suitable metal weather stripping frequently reduces by 15 to 20 per cent the radiation required.

The prevention of window leakage means a saving of heat and a lessening of dirt blown into the house. In a certain apartment house, says the bulletin, situated near a railroad station in a large city, during the first season of its occupancy the heating system supplied sufficient heat with a reasonable economy of fuel, but smoke and dust were a nuisance. Metal weather stripping was applied before the next heating season, and as a result the temperature of the rooms was too high. The radiating surface was reduced almost one-fourth, and it still supplied sufficient heat, while the fuel consumption also showed a noticeable reduction.

A fuel saving of 15 to 25 per cent appears possible by equipping windows and doors with metal stripping. If, therefore, metal stripping is put in when a house is built, it is possible to reduce the size and cost of the heating plant in proportion to the reduction in radiation surface made possible. The cost of metal weather stripping may frequently be offset by the reduction in the cost of the heating plant.

Copies of the bulletin may be had upon request of the department at Washington, D. C.

ILLEGAL TO USE MOTOR BOATS FOR HUNTING WILD DUCKS

No changes have been made in the Federal regulations which prohibit the use of power boats in taking wild fowl, according to a statement just issued by the Biological Survey of the United States Department of Agriculture. It will be unlawful, therefore, to hunt ducks in the State of Maryland and elsewhere with a boat equipped with an engine, and especially will it be a violation of the law for persons to run down with motor boats ducks which have settled among decoys previously placed, a practice which is generally known as "bushwhacking."

Erroneous reports had been circulated in the vicinity of the Susquehanna flats that changes had been made in the Federal regulations governing shooting of wild fowl from power boats, and as a consequence persons relying upon such rumor were getting their boats in shape to use in pursuing ducks during the coming season. The regulations do not prevent a person from using a motor boat to go to and from the ducking grounds or to attend to ducking outfits, but the Biological Survey points out that, while it will be lawful to pick up dead ducks from a power boat, it is a violation of the law to shoot ducks from such a boat.

LAWS OF 1921 RELATING TO FUR-BEARING ANIMALS

Half of the 42 State legislatures in session this year enacted legislation relating to fur-bearing animals, the general trend of which was to safeguard these animals and insure prime condition of peltries. The need for such legislation is apparent in the light of estimates by raw-fur buyers that the decrease in the supply of peltries during the last 10 years has been from 25 to 50 per cent.

So states the Biological Survey, United States Department of Agriculture, in Farmers' Bulletin 1238, a summary of the trapping laws of the United States, Canada, and Newfoundland. The bulletin which lists information State by State regarding open seasons, prohibited methods, license requirements, etc., may be obtained free of charge upon application to the department at Washington, D. C. Summarizing the new legislation, in part, the department says:

"The season on beavers was closed for a term of years in Indiana, Michigan, Nevada, and South Dakota, and on otter in Indiana and Nevada. Muskrats were protected until 1924 in North Dakota. Open seasons for taking fur-bearing animals were shortened in Idaho, Indiana, Kansas, Maine, Massachusetts, Pennsylvania, Rhode Island, and Vermont; houses, dens, or burrows of fur animals were protected in Kansas, Maine, and Michigan. Open seasons were slightly lengthened in Michigan, Ohio, South Carolina, and locally in New Hampshire."

QUAIL PLENTIFUL THIS YEAR.

The bobwhite is plentiful this year. Two successive mild winters and three good breeding seasons have multiplied bobwhite coveys by the thousand, according to reports to the Biological Survey, United States Department of Agriculture. In Virginia, Maryland, North Carolina, South Carolina, Illinois, and Indiana there has not been such an abundance of quail in many years, the department is advised. In a recent trip through northern and northwestern Indiana, the bobwhite was seen in greater numbers than ever before, and wardens in many other States in which there is no open season on quail report that the bobwhite is abundant in their localities, notably in Ohio, Kansas, Iowa, and Nebraska.

NEW SOURCE OF BINDER TWINE IN PHILIPPINE SISAL FIELDS

The cultivation of sisal and maguey for binder twine has been promoted to such an extent by the cooperation of the United States Department of Agriculture with the Philippine bureau of agriculture that these fibers are looked upon as an extensive future source of American supply.

H. T. Edwards, specialist in fiber plant production, recently returned from the Philippines and Java, reports that 75,500 acres were devoted to maguey and sisal in the archipelago this year, and the yield was approximately 18,178 metric tons of 2,200 pounds. The value was about $1,704,000 in American money.

Philippine maguey fiber formerly was used extensively by American binder-twine manufacturers. This fiber, which was cleaned by retting the maguey leaves

in salt water, fell into disfavor when it was learned that binder twine made from the salty fiber was subject to the attack of insects.

The Department of Agriculture, in cooperation with the Philippine bureau of agriculture, purchased three modern fiber-cleaning machines, with which they demonstrated that maguey can be cleaned profitably by machines and without the use of salt water. As a result of this cooperative Government work, aided by private enterprise, 18 machines have been imported, and machine cleaning of maguey and sisal fiber in the Philippine Islands is now established on a commercial basis.

While the quantity of binder-twine fiber now raised in the Philippines is only a drop in the bucket compared with American and world demand, the department authorities believe the development of the industry promises a future output which will relieve American manufacturers of the present almost absolute dependence on Yucatan, where internal and international conditions have sometimes imperiled the American supply.

The department is encouraging the substitution of sisal for the more commonly cultivated maguey.

FEDERAL HIGHWAY AID HELPS SOLVE UNEMPLOYMENT PROBLEM

(*Continued from page 1.*)

tioned among other States if the provisions of the act are not complied with in three years, immediate legislative action would seem desirable in all the States which have not complied with the requirements of the new measure governing Federal aid.

The effect on the unemployment situation will not be delayed, however, until legislative action is taken in all States. Thirteen States have reported to the department that their highway work is being delayed because they have exhausted previous allotments of Federal aid, or that they are holding work planned in anticipation of the new appropriation. Other States are preparing enlarged programs of road construction.

Most States Meet Federal Requirements.

In virtually all cases these are the more populous States which receive large allotments, and already have taken the legislative action necessary to meet the requirements of the Federal highway measure. These States are simply awaiting final adoption of the conference report by Congress and the President's signature to the measure to begin the use of their allotment. It is a fortunate condition that the States with the largest allotments, and which can proceed at once with road construction, are the States where unemployment conditions are probably the worst.

Federal aid funds in the past have been matched with considerably more than an equal amount of State money. It may reasonably be expected that with $75,000,000 for Federal aid at least an equal amount of State money, and $15,000,000 for national-forest roads, which will be supplemented to some extent by State funds, from $165,000,000 to $200,000,000 will be spent in road construction to which Federal aid contributes.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended October 19, 1921:

The Potato Leafhopper and Its Control. By J. E. Dudley, Jr., Scientific Assistant, Truck-Crop Insect Investigations. Pp. 16, figs. 14. Contribution from the Bureau of Entomology, 1921. (*Farmers' Bulletin 1225.*)

Experiments and Suggestions for the Control of the Codling Moth in the Grand Valley of Colorado. By E. H. Siegler, Entomologist, and H. K. Plank, Scientific Assistant, Fruit Insect Investigations, in cooperation with the Colorado Agricultural Experiment Station. Pp. 38, pls. 2. Contribution from the Bureau of Entomology. (Professional Paper.) (*Department Bulletin 959.*) Price, 10 cents.

Results of Work on Blister Beetles in Kansas. By F. B. Milliken, Scientific Assistant, Truck-Crop Insect Investigations. Pp. 26, figs. 22. Contribution from the Bureau of Entomology. (Professional Paper.) (*Department Bulletin 967.*) Price, 10 cents.

Marketing Hay at Country Points. By H. B. McClure, Specialist in Marketing Hay, and G. A. Collier, Investigator in Marketing Hay. Pp. 27, fig. 1. Contribution from the Bureau of Markets and Crop Estimates. (*Department Bulletin 977.*) Price, 5 cents.

The Composition of California Lemons. By E. M. Chace, Chemist in Charge, and C. P. Wilson and C. G. Church, Assistant Chemists, Laboratory of Fruit and Vegetable Chemistry. Pp. 18, figs. 2. Contribution from the Bureau of Chemistry. (*Department Bulletin 993.*) Price, 5 cents.

The Beet-Sugar Industry in the United States in 1920. By C. O. Townsend, Pathologist in Charge, Office of Sugar-Plant Investigations. Pp. 58, figs. 10. Contribution from the Bureau of Plant Industry. (*Department Bulletin 995.*) Price, 20 cents.

Flushing and Other Means of Increasing Lamb Yields. By F. R. Marshall and C. G. Potts, Animal Husbandry Division. Pp. 14. Contribution from the Bureau of Animal Industry. (*Department Bulletin 996.*) Price, 5 cents.

Forest Experiment Stations. By Earle H. Clapp, Assistant Forester, Forest Service. Pp. 34, figs. 9. (*Circular 183, Office of the Secretary.*) Price, 10 cents.

Fulghum Oats. By T. R. Stanton, Agronomist in Oat Investigations, Office of Cereal Investigations. Pp. 11, figs. 2. Contribution from the Bureau of Plant Industry. (*Department Circular 193.*) Price, 5 cents.

Kanred Wheat. By J. Allen Clark, Agronomist in Charge of Western Wheat Investigations, Bureau of Plant Industry, and S. C. Salmon, in Charge of Farm-Crop Production, Kansas Agricultural Experiment Station. Pp. 13, figs. 3. Contribution from the Bureau of Plant Industry. (*Department Circular 194.*) Price, 5 cents.

Directory of Officials and Organizations Concerned with the Production of Birds and Game, 1921. Pp. 20, contribution from the Bureau of Biological Survey. (*Department Circular 196.*) Price, 5 cents.

Soil Survey of Adair County, Iowa. By Clarence Lounsbury, of the U. S. Department of Agriculture, and T. H. Benton and P. C. Wiechmann, of the Iowa Agricultural Experiment Station. Pp. 25, fig. 1, map. (*From F. O. Soils, 1919.*) Price, 15 cents.

Soil Survey of Marshall County, Iowa. By A. H. Meyer, of the U. S. Department of Agriculture, and E. I. Angell, of the Iowa Agricultural Experiment Station. Pp. 35, fig. 1, map. (*From F. O. Soils, 1918.*) Price, 15 cents.

Soil Survey of Polk County, Iowa. By E. H. Smies, of the U. S. Department of Agriculture, and George E. Corson and Charles J. Meister, of the Iowa Agricultural Experiment Station. Pp. 67, fig. 1, map. (*From F. O. Soils, 1918.*) Price, 20 cents.

Soil Survey of Bowie County, Texas. By L. R. Schoenmann, W. I. Watkins, E. J. Carpenter, William T. Carter, Jr., and M. W. Beck, of the U. S. Department of Agriculture, and T. H. Benton of the Texas Agricultural Experiment Station. Pp. 62, fig. 1, map. (*From F. O. Soils, 1918.*) Price, 25 cents.

Speaking of the Weather. By J. Warren Smith, Weather Bureau. Pp. 23, il. (*Separate 838. Yearbook, 1920.*) Price, 5 cents.

Journal of Agricultural Research. (For sale only.) Vol. 22, No. 2. October 8, 1921. Contents: Comparative Vigor of Wheat Crosses and Their Parents. (Minn.–43.) By Fred Griffee.—Temperature and Humidity Studies of Some Fusaria Rots of the Irish Potato. (Nebr.–3.) By R. W. Goss.—Blackleg Potato Tuber-Rot Under Irrigation. (G–246.) By M. Shapovalov and H. A. Edson.—Microscopic Study of Bacteria in Cheese. (N. Y. (Geneva) 6.) By G. J. Hucker.—Further Studies on Relation of Sulphates to Plant Growth and Composition. (Oreg.–7.) By Harry G. Miller.—Soybean Mosaic. (Ind.–10.) By Max W. Gardner and James B. Kendrick. Pp. 53–114, pls. 10. Price, 15 cents.

Service and Regulatory Announcement, Supplement 118, Bureau of Chemistry. (Notices of Judgments, 9351–9400.) Pp. 259–292. Price, 10 cents.

Service and Regulatory Announcement, No. 36, Insecticide and Fungicide Board. Pp. 835–866. Price, 5 cents.

Service and Regulatory Announcement, No. 70, Bureau of Markets and Crop Estimates. State Bureaus of Markets, Including Divisions and Other Agencies Doing Marketing Work. Pp. 12. Price, 5 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the superintendent of documents direct, not to the Department of Agriculture.

GOOD BULLS RAISE BUTTERFAT AVERAGE.

According to tabulations made by the Dairy Division, the use of 41 purebred bulls on purebred cows resulted in an average improvement in the annual production of the daughters as compared with their dams of 50 pounds of butterfat each. This forcibly suggests the improvement that is likely to come in an ordinary herd from the use of meritorious bulls.

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Weekly News Letter

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WALLACE NAMES STOCKYARDS WHICH COME UNDER PACKER ACT

Sixty-Six Found to Come Within Provisions of New Law and Number May Be Extended.

Hearings to Be Held At Leading Stockyards to Discuss General Rules and Regulations—Market Supervisor Will Be Placed in More Important Yards.

Secretary of Agriculture Wallace announced, November 1, the names of 66 stockyards in various parts of the country that up to this time have been determined as coming within his jurisdiction under the Packers and Stockyards Act, recently enacted by Congress. The owners of the yards have been notified and formal notices have been posted in each of the yards, as provided by law. Further investigation, it is said, may disclose that a few additional yards also will come within the provisions of the act. The 66 yards are as follows:

Stockyards in Which Notices Were Posted.

New Orleans Stockyards, Inc., Arabi, La.
Miller Union Stockyards, Atlanta, Ga.
Augusta Stockyard Co., Augusta, Ga.
Union Stockyard Co., Baltimore, Md.
Union Stockyards Co. of New Jersey, Benning, D. C.
Birmingham Stockyards Co., Birmingham, Ala.
Brighton Stockyards Co., Brighton, Mass.
New York Central Railroad Co., Buffalo, N. Y.
Foust-Yarnell Stockyards, Chattanooga, Tenn.
Union Stockyard and Transit Co. of Chicago, Chicago, Ill.
Cincinnati Union Stockyard Co., Cincinnati, Ohio.
Cleveland Union Stockyards Co., Cleveland, Ohio.
Columbia Stockyards Co., Columbia, S. C.
Drovers Union Stockyards, Columbus, Ohio.
Union Stockyards Co., Dayton, Ohio.
Denver Union Stockyard Co., Denver, Colo.
Michigan Central Railroad Co., Detroit, Mich.
Dublin Stockyards, Inc., Dublin, Ga.
El Paso Union Stockyards Co., El Paso, Tex.
Independent Union Stockyards Co., El Paso, Tex.
Evansville Union Stockyard Co., Evansville, Ind.
Fort Worth Stockyards Co., Fort Worth, Tex.
Fostoria Union Stockyards Co., Fostoria, Ohio.
Belt Railroad and Stockyards Co., Indianapolis, Ind.
National Stockyards, Jacksonville, Fla.
The Jersey City Stockyards Co., Jersey City, N. J.
Kansas City Stockyards Co., Kansas City, Mo.
East Tennessee Stockyards, Knoxville, Tenn.
Lafayette Union Stockyard Co., Lafayette, Ind.
Union Stockyard Co., Lancaster, Pa.
Bourbon Stockyards Co., Louisville, Ky.
Marion Union Stockyards Co., Marion, Ohio.
Joseph A. Maxwell & Sons Commission Co., Memphis, Tenn.
Dixie National Stockyards, Memphis, Tenn.
South Memphis Stockyards, Memphis, Tenn.
Milwaukee Stockyards Co., Milwaukee, Wis.

ESSENTIALS FOR SUCCESSFUL COOPERATIVE MARKETING

1. A definite and binding producers' or growers' contract.
2. A legal form of business organization.
3. A plan of business operation which is economically sound.
4. A practical and adequate plan of financing.
5. Competent administrative supervision of all the business.
6. Efficient management of all operating parts.
7. Skilled and efficient employees in all the operating parts.
8. A volume of business which makes economical operation possible.
9. An adequate system of accounting records.
10. A progressive and sound business policy.

EVERY COOPERATIVE ORGANIZATION NEEDS THESE ESSENTIALS. DOES YOURS HAVE THEM?

L. & N. Stockyards, Montgomery, Ala.
Union Stockyards Co. of Montgomery, Inc., Montgomery, Ala.
Moultrie Stockyards, Moultrie, Ga.
Nashville Union Stockyards, Inc., Nashville, Tenn.
St. Louis National Stockyards Co., National Stockyards, Ill.
Newark Stockyards, Newark, N. J.
New York Stockyards, New York, N. Y.
Portland Union Stockyards Co., North Portland, Oreg.
Salt Lake Union Stockyards, North Salt Lake, Utah.
Union Stockyards, Ogden, Utah.
Oklahoma National Stockyards Co., Oklahoma City, Okla.
Pasco Union Stockyards Co., Pasco, Wash.
Peoria Union Stockyards Co., Inc., Peoria, Ill.

(*Continued on page 16.*)

FEDERAL RESERVE RULING A HELP TO FARM CREDIT

Secretary Wallace Declares Ruling Should Make Bank Credit More Available for Farm Use.

Drafts Accepted by Cooperative Organizations Acting as Selling Agent for Producers Are Eligible for Rediscount Up to Six Months.

Concerning the ruling recently made by the Federal Reserve Board to the effect that growers' drafts accepted by cooperative marketing associations should be classed, if the proceeds are to be used for an agricultural purpose, as agricultural paper eligible for rediscount at Federal reserve banks, Secretary of Agriculture Henry C. Wallace said: "It is a ruling of importance and should result in making bank credit more available for farm use."

Base Ruling on Tobacco Transaction.

In the case which resulted in the ruling being made, members of a tobacco growers' cooperative marketing association drew drafts upon the association which was acting as their agent only in the sale of their tobacco. The drafts were accepted by the association, and the Federal Reserve Board was then called upon to decide whether the drafts should be classed as agricultural paper eligible for rediscount at Federal reserve banks, with a maturity up to six months, or should be classed as commercial paper eligible for rediscount only when its maturity date is not in excess of 90 days.

The board ruled that where the drafts complied in other respects with the requirements of the law, and the board's regulations, that the drafts should be classed as agricultural paper, and as such would be eligible for rediscount by a bank that was a member of the Federal reserve system with a Federal reserve bank for a period not in excess of six months. If the cooperative association had been the purchaser of the tobacco instead of the agent of the members in

the sale of the tobacco, the ruling would have been otherwise, and the drafts would have been classed as commercial paper, and as such would only have been eligible for rediscount, with a maturity not in excess of 90 days.

Place Conservative Value on Products.

Before any association accepts any drafts, Secretary Wallace pointed out, it should consult the local bankers and obtain their opinions as to the percentage of the market value of the products delivered for which these drafts should be accepted. "It is only natural," he said, "that if the drafts are drawn for a conservative percentage of the value of the products which the farmer has delivered to the association that the bankers, and even subsequent holders, will regard the drafts as a much safer investment than if the drafts represent a high percentage. This is especially true during the present time, when market values are so uncertain. Either notes, drafts, or bills of exchange, it should be remembered, drawn or issued by farmers for agricultural purposes and secured by Federal warehouse receipts for readily marketable staples are eligible for rediscount under the six months' rule."

Department specialists in farm finance believe that the method employed by the tobacco growers' association would be found of value by other cooperative associations, especially when used in connection with receipts for agricultural products issued by warehouses licensed under the Federal warehouse act. There is a growing tendency on the part of bankers throughout the country to require Federal warehouse receipts when making loans based on agricultural products. The president of the New York Bankers' Association, in discussing the matter of granting credit on produce to farmers and the importance of a warehouse receipt, recently said:

Difficulties in Making Loans.

"My own theory is that we ought to be free in extending loans to deserving farmers and make them feel that we are ready to cooperate when the credit is right. Our credit man, for instance, is having an interesting time educating farmers to see the difference between loaning on potatoes in the farmer's cellar which are ungraded, uninsured, subject to frost and other hazards, and on apples graded by a third party and stored in a warehouse with warehouse receipt issued to the bank. In other words, we are showing to the farmers that if they would handle their produce in the way the best business houses do, their loans would be as welcome as those of the business houses."

UNITED EXTENSION PROGRAM NEEDED, SAYS ASS'T SECRETARY

Signs Point to a New Era in Which Forces Will Be More Closely Combined.

Three Separate and Distinct Lines of Extension Work Maintained for the Men, the Women, and the Boys and Girls Should Be Brought Together.

In an address before a meeting of Ohio extension workers at Columbus, October 26, C. W. Pugsley, Assistant Secretary of Agriculture, said:

"Unless I am mistaken in reading the signs of the times, we are entering a new era of extension work. The history of agricultural and home economics extension work shows eras, as does every other history, of progress. First came the old-fashioned agricultural fair, where the biggest pumpkins and the heaviest oxen took the prizes. This was followed by the farmers' institute, where popular and entertaining lectures were given to farm audiences on agricultural subjects. Next came the movable school, where technically trained experts, with practical experience, camped in a community for several days and conducted classes in agriculture and home economics. We are now in the agent era, where we have county agents, home-demonstration agents, and boys' and girls' club agents.

Each Step Shows a Gain.

"Each period was an improvement over the one which preceded. Each succeeding one kept the good things of the past, and added to them. The present era of special agents has given us the best plan of popular vocational education the world has yet seen. It is so good that many of its advocates are skeptical about any improvements. When workers reach a point where they feel no improvement can be made, it is a pretty sure sign that there is something wrong.

"My reason for predicting a change in the type of extension work is that the present tendency of having several agents working independently in a county seems neither logical nor wise. It does not tend to solve the rural problem as effectively nor as rapidly as it could be solved under a united extension program. We need the agents, but we need to have them more closely united.

"The present condition in which we find ourselves is the logical outgrowth of our past and present method of conducting extension instruction under the Smith-Lever law, but was not necessarily contemplated in that law. Why should we have in the Department of Agriculture, in the State extension services, or in the counties three separate and distinct offices or lines of work—one for the men, one for the women, and one for the boys and girls? Such a system tends to divide a house against itself. It makes practically impossible a united extension program. It makes it necessary to go to Congress, State legislatures, and county officers with requests for appropriations for three lines of work rather than for a united program of agricultural progress.

"The new era which we are entering is one which will give careful consideration to an agricultural program for the Nation, the State, and the county. It will be a program which will provide for adequate and economic production and efficient and economic distribution of farm products, as well as for an enlarged social life for the people on the farms. This can only be brought about by enlisting the entire family in one united extension program agreed to before it is undertaken and adhered to until it is accomplished. That is the new era upon which we are entering."

Working on Plan of Reorganization.

This was the first public address made by Mr. Pugsley since he took the office of Assistant Secretary of Agriculture on October 1. At that time Secretary Wallace placed him in charge of all of the extension activities of the Department of Agriculture. At the same time the Secretary ordered the consolidation of the North and South extension offices. Before that the administration of the extension work was divided into two separate offices—one administered the work in 33 Northern and Western States and the other administered it in 15 Southern States. Just now the type of reorganization at the Washington department is being worked out. Mr. Pugsley says that the department hopes to have the new plan ready to announce at the meeting of agricultural college presidents, deans, and extension directors at New Orleans next month.

SOY-BEAN STRAW IS GOOD ROUGHAGE.

The Tennessee station compared soy-bean straw and corn stover as roughage in the production of milk and butter. The ration containing soy-bean straw was found superior to that containing corn stover. This ration produced more pounds of milk and butter fat and produced them more cheaply than the corn-stover ration. In every case there was less loss in milk and butter fat during the feeding of soy-bean straw than during the feeding of corn stover. It was concluded from these tests that soy-bean straw is a valuable addition to the roughage in the feeding of dairy cows.

MORGAN HORSE WINS LAURELS IN 300-MILE ENDURANCE CONTEST

Placed Fourth Among 17 Entries, of Which He Is the Oldest and Smallest.

This Remarkable Horse, Castor, Has Notable Record in the Stud and Proves Great Worth of the Morgan as a General All-Around Horse.

Castor, the 800-pound registered Morgan horse that was placed fourth in the United States mounted service endurance test of 300 miles in five days, which was completed on October 15, is the property of the United States Department of Agriculture and was bred at its Morgan Horse Farm near Middlebury, Vt. He was sired by General Gates, the premier stallion at the farm for many years, and out of a mare by Bob Morgan, another remarkable representative of the Morgan breed.

Used in the Stud for Three Years.

In 1914 Castor was first used on the remount breeding work in Vermont, he being then 5 years of age. He was continued in this work for three years. The third year Castor finished the breeding season in bad condition, due to improper feeding on the part of the groom. This occurred at a considerable distance from the Morgan Horse Farm, which made frequent inspections of the horse by the superintendent impracticable. It did not appear that he would ever recover from the effect of this mistreatment, so he was castrated, but, as has been his custom, he recovered and by the following spring was again in excellent spirits and flesh. Needing more horse power on the farm, Castor was utilized at various tasks during 1917 and 1918.

The first official endurance test held in 1919 brought a demand for Morgans from army officers at Fort Ethan Allen, Vt. Castor was turned over to Capt. Hurlburt, who trained and rode him in the test. Due to fatigue, the rider grew careless on a steep hill on the last day of the test and, as a result, Castor received a bad fall, resulting in a severe cut to his knee, which caused him to finish lame. With this handicap he finished the test in the second best time of any of the contestants.

Upon being returned to the Morgan Horse Farm, Castor was used as a carriage horse and gradually put into good flesh. Later that fall he was shipped to Washington, D. C., and with a mate was used for the Secretary of Agriculture's carriage. The following spring he was shipped to Norwich University in Vermont, where he was prepared by a cadet, under an officer's supervision, for the 1920 endurance test. Before the test he appeared to be overtrained, but he made a good showing, drawing seventh place in the final awards.

Preparing for the Third Test.

After another rest, Castor was turned over to the forester of Middlebury College (Vermont), who used him continuously for riding over mountain timberland until his intensive training for the 1921 endurance test was begun at the Morgan Horse Farm. Due to his hard work in the mountains and to rather limited rations, Castor was very thin and put on little flesh during his training, but he grew strong and hard and improved in spirit.

His intensive training lasted a little over 60 days, during which time he covered from 20 to 38 miles per day over various kinds of roads, and the weight was gradually increased until he was carrying 225 pounds the second week before the test began. During his training Castor showed no lameness or soreness, and he was always a good feeder.

A slow journey by rail caused him to be on the cars five days in going to Camp Alfred Vail, N. J., and with two days intervening between his arrival and the start of the test, he began it under a slight disadvantage. Although not as fast as several in the test, he made a consistent performance throughout and carried his 245 pounds (nearly one-third of his weight) without developing any leg trouble. His temperature, respiration, pulse, and appetite demonstrated conclusively that he was up to the task and had been properly conditioned. His loss of only 12½ pounds was a remarkable part of his performance, especially considering the fact that he was by far the smallest horse in the test.

Proves the Great Value of Morgans.

Castor, by his varied uses, has demonstrated the wonderful versatility of the Morgan horse. He began his career by siring a good number of horses, which were purchased by the War Department for cavalry purposes. He served as a farm horse, and in good flesh was half of a useful and attractive small carriage pair. He served admirably as a utility saddle horse, and in the three official endurance tests made a creditable showing each time under a different trainer and with a different rider. He was ridden this year by Edward Goullette, a regular employee at the United States Morgan Horse Farm.

Castor represents the type of horse that has economic value where a strong small horse is well suited for farm work on rough land and where deep snows in the winter make saddle and driving horses absolutely necessary. Such horses also furnish a reserve supply for military purposes that may be drawn on in the event of hostilities.

Wonderful stories are handed down of the remarkable all-around usefulness of Justin Morgan, the founder of the Morgan breed of horses. These qualities appear to-day in the horses of Morgan ancestry, even when the blood is mixed with considerable foreign blood. As one of the judges of the 1921 endurance test said, "Justin Morgan was no doubt a remarkable horse, but I don't believe he had anything on Castor."

Seventeen Horses Start, Six Finish.

The winner of the race was Crabbet, purebred Arab owned by W. R. Brown, of Berlin, N. H., president of the Arabian Horse Club of America, and the prime mover in the establishment of this endurance contest.

Out of a total of 17 entries, 6 horses finished, the remaining having been taken from the race by reason of lameness, accident, or fatigue. The other winners, in order of their rating on the basis of condition and speed, were as follows: Vagrant, a thoroughbred entered by the Remount Service of the Army; Rustem Bey, an Arab standard-bred cross owned by Mr. Brown; Castor, a purebred Morgan entered by the United States Department of Agriculture; Pathfinder, a thoroughbred entered by the Remount Service; and Cragmore, a thoroughbred-standard-bred cross owned by Mr. Brown.

This endurance test for the United States Mounted Service cup was under the direction and management of a committee of sponsors made up of one representative each from the Arabian Horse Club of America, the Morgan Horse Club, the National Steeplechase and Hunt Association, the American Hackney Horse Society, the Thoroughbred Endurance Test Club, the National Saddle Horse Club, the American Remount Association, the Horse Association of America, the Bureau of Animal Industry of the United States Department of Agriculture, other interested organizations, and the two donors of the prizes.

The object of this test, which is approved by the War Department, the Chief of the Remount Service, and the Chief of the Bureau of Animal Industry, is designed to stimulate interest in good saddle horses possessed of stamina and hardiness and suitable for use in the mounted service of the United States.

The test is planned for the horse and not for the rider, and the human factor has been eliminated so far as possible without detracting from the public interest. Entries are solicited equally from the military service and civilian life.

The distance covered is approximately 300 miles, 60 miles a day for five days regardless of weather. The speed at which the distance is covered counts 40 points and the condition of the horse 60 points. The perfect score for speed is given on a record of 45 hours for the trip, or 9 hours for each 60 miles. The longest time a contestant can take is 60 hours, or 12 hours of traveling each day. Every horse carries 245 pounds, which is considered to be the average for a Cavalry horse. Each rider feeds and cares for his own mount.

WHITE PINE BLISTER RUST FOUND IN PENNSYLVANIA

For the first time since the white pine blister rust was discovered in America, infections on currant and gooseberry bushes were found this fall in Pennsylvania. The original discovery was made by a United States Department of Agriculture blister rust investigator in Wayne County. The significance of this discovery lies in the fact that white pine blister rust is spread from pine to pine only through the medium of currant or gooseberry bushes. While some blister rust has been found on planted pines in Pennsylvania, they were brought in from Europe in a diseased condition. These infected trees were destroyed before currant and gooseberry leaves became diseased, thus eliminating the danger of the blister rust attacking healthy pines.

Extensive work has been done in New England and northern New York the past summer to organize movements for eradication of the death-dealing bushes within 300 yards of white-pine trees and stands. Such work protects the trees from the disease for a period of years, but both wild and cultivated currant and gooseberry bushes must be destroyed within the 300-yard zone. Owners of fine stands of white pine often have been reluctant to believe danger exists through the proximity of the bushes, but once demonstration has been made, they become active in rooting out the offending shrubs. Infestations as high as 46 per cent of the pines have been found on some properties in New England and New York. White pine is well recognized as one of the most profitable crops that can be grown on the poorer soils of the Northeastern States.

HOME DEMONSTRATION WORK DEVELOPS LOCAL LEADERSHIP

Building for Permanent Work Takes the Place of the Emergency Activities of Previous Years.

Projects in Northern and Western States Include Clothing, Nutrition, Home Management, Food Preservation and Production, General Health, and Care of Children.

Home demonstration work carried on by representatives of the United States Department of Agriculture, cooperating with the State agricultural colleges through an organization composed of the people of the community was undoubtedly much better understood at the end of 1920 than it was the year previous. People began to have a greater sense of their responsibilities with regard to the problems of better living. The relation of food to human efficiency, of clothing to health and economy, of improved household conditions and conveniences to living standards, appears to have been more clearly appreciated.

Large Gains in County Membership.

The proof of this is the increased number of rural women who acted as local leaders of demonstrations or who lent their support, encouragement, and personal interest to home demonstration work in the counties. Membership in the county extension organization increased in practically every State—in several States as much as 50 per cent. All States in the North and West report work in 1920 in some phase of clothing, nutrition, and home management work. Food preservation was a project in every State but one, health in all but two, and food production by women, especially poultry improvement, was carried on in practically all the Western and Middle States, according to Circular 178, Status and Results of Home Demonstration Work, Northern and Western States, 1920, just issued by the United States Department of Agriculture.

The problems of food, clothing, care of children, the comfort of the home, and the general business of housekeeping confront every homemaker and every group of housekeepers in all parts of the country. The call for guidance in clothing work in 1920 was so compelling that clothing specialists were added to the State extension staffs of the agricultural colleges in a number of States. The circular points out that rural women do much of the family sewing. High prices of fabrics and of ready-made garments increased the amount of home sewing all over the country, and farm women warmly welcomed the assistance of the home demonstration agent or State specialist. The fundamental idea underlying clothing demonstration has been economy of time, effort, money, and material.

Various phases of health work have been carried on in every State in cooperation with State boards of health, with county, school, and Public Health Service officers, and in many instances with the Red Cross. Home nursing, sanitation, and various phases of child care, including nutrition, have been the projects of major importance. The circular calls attention to the fact that Massachusetts has done outstanding work in dental hygiene.

Schools Aid Work.

While but little help in food preparation has been desired 1,717 communities have carried on work in food selection, 1,899 have promoted the serving of a hot dish at noon in local schools, 603 have taken up work in child feeding proper, and 380 have carried on milk feeding demonstrations. The interest in child feeding has been due largely to the startling statistics accumulated during the past few years indicating the amount of malnutrition among American children of school and preschool age.

Observations reported by home demonstration agents and nutrition specialists indicate, according to the circular, that irregular habits, late and hurried breakfasts, cold, unpalatable and poorly selected school lunches, often only partially eaten, delayed chores, late hours, lack of sufficient rest periods, and the common use of tea and coffee by young children are contributing causes to this prevalent condition of malnutrition. The country child's diet has often been found lacking in milk, fruit, and green vegetables. Sweets and pastry are often used in undue proportion, while poorly baked bread and scorched and greasy fried foods are served more commonly than they should be.

Home management, labor saving appliances, and household accounts were given considerable attention. Poultry work was the major project in food production. Gardening, cheesemaking, bee raising, and small fruits interested the women in a few States. Butter making was increased as information spread on the need of butter in children's diet.

Instruction in Canning Wanted.

Meat canning with the pressure cooker was the principal development in food preservation work. Instruction in the canning of poultry was wanted wherever flocks were culled. Community canning

kitchens, which were closed following the armistice, reopened in 21 States. Canning in tin and cooperative buying of canning supplies also increased. Drying was stimulated through samples of standard evaporated products sent out by the Department of Agriculture.

Opinions from all States show that in home demonstration work 1918 was a year of emergency activities, 1919 a year of transition, 1920 a year of building for permanent work already under way. The development of strong local leaders, the part of the specialists in the program of work, the general interest in boys' and girls' clubs, and the outlook for 1921 are all discussed fully in the circular which is free upon application to the Department of Agriculture.

STUDY BOTANICAL SPECIMENS TO FIND NEW USEFUL BEAN

One of the clews by which new plants of value may be found is to study the great collections of dried plants in the larger museums. One group of plants, containing the Jack Bean, and its allies, in which there was reason to believe that valuable species might occur, is being studied by Prof. C. V. Piper of the United States Department of Agriculture. The department has recently borrowed all of the dried specimens from the Royal Botanic Gardens at Kew, London.

There are about 15 species in the Old World and over 30 in the New World. Many of the dried specimens collected by old exploring expeditions are as much as 100 years old. The study has disclosed the fact that an entirely undescribed species with larger seeds than any other known is cultivated in certain districts in Africa, and efforts are being made to secure fresh seed, as it looks valuable. Several other heretofore unrecognized species look as if they might be valuable.

KENTUCKY SHEEPMEN IMPROVE STOCK.

In several Kentucky counties where sheep raising is one of the major farm projects sheep breeders are improving their flocks on an extensive scale, according to the United States Department of Agriculture. One of the outstanding developments is that purebred rams are being widely used. This indicates the increased interest apparent in many sections of the country in the improvement of the home flock by the use of better sires. Recently a special "better-sire" sale was held at Louisville, where 250 purebred rams of Hampshire, Shropshire, and Southdown breeding were sold and distributed in flocks throughout the State.

LAMONA, A GENERAL-PURPOSE BREED OF GREAT PROMISE

Made up from Three Well-Known Varieties, but Differs in Many Respects from All Others.

Government Poultry Experts Have Produced a New Breed of White Fowls Which Lay White-Shelled Eggs and Have Excellent Meat Qualities.

The country will soon have a new breed of poultry, a white fowl with red ear lobes, that lays a white-shelled egg, developed by the poultry experts of the United States Department of Agriculture at the Government experimental farm at Beltsville, Md. Heretofore, it is said, all breeds with red ear-lobes have laid brown-shelled eggs. The project was conceived by Harry M. Lamon, senior poultryman of the Bureau of Animal Industry, and at the suggestion of the chief of that bureau Secretary Wallace has named the new breed Lamona for the originator.

Carcass Is Handy Market Size.

The new fowl possesses characteristics of great merit. It has sufficient size to fit the demands of the great number of consumers who want a bird weighing 4 to 6 pounds. The body is long and of good depth, giving a large amount of the highly desirable breast meat, and at the same time large capacity for the reproductive organs.

The Lamona fowl is larger than the Leghorn, approaching in size fowls of the American class. It is white, which is most desirable from the marketmen's viewpoint. It has a comb and wattles of medium size, which are not easily frosted, thereby checking development or egg production. It is well feathered, which makes it resistant to sudden changes in temperature. These points all combine to make it an exceptionally good winter layer of white eggs.

Foundations of the New Breed.

The project resulting in the creation of the new Lamona was started in 1912 when the idea was conceived of combining three varieties of fowls to produce a breed having the shape and the market qualities of the Dorking, with a yellow skin, white plumage, and four toes, and laying a white egg. A low-stationed, close-feathered White Plymouth Rock male was mated to a Silver Gray Dorking female; and a Single-Comb White Leghorn male, having a rather small, low comb, was mated to a Silver-Gray Dorking female.

The second year the offspring of these crosses were mated separately, the females were trap-nested, and only the high producers of the largest and whitest eggs were used for breeders. Only males from high-producing females have been used at any time. The third year the results of the crosses of the second year were mated, and in addition care was taken to select white specimens with yellow skins having only four toes. Since then it has been a task of careful selection and breeding.

By selection according to Mendelian law most of the fowls have come white with yellow legs and four toes. White-shelled eggs and red ear lobes have been more difficult to fix. There have been many hens that laid white-shelled eggs, but they did not have red ear lobes, and there have been many hens with red ear lobes that laid tinted eggs. But a considerable number of hens have been raised that meet the requirements, and several cocks that have thrown daughters with red ear lobes which laid white-shelled eggs. With these fowls of known quality and breeding mated together progress toward the ideal should be more rapid.

Beautiful Pyle-Colored Variety.

The second variety of this project is a Pyle-colored fowl. The females have pale buff breasts, while the males are white with rich red wing bows and back, which makes them very attractive. They have not been so fully developed as the whites, and some lay tinted while others lay white eggs. They have such unusual color markings that it undoubtedly will prove worth while to develop them further. In this case an effort will be made to intensify the color in the females, which at present is rather pale and unattractive. They should add a very noteworthy color combination in a breed of distinctive merit.

The new breed is not yet ready for introduction, and no specimens or eggs will be sold until the characteristics sought have been more firmly fixed. It is as well or better developed than were several of the breeds and varieties when they were introduced by their breeders, but the specialists of the department believe that it is not sufficient to have a few specimens that measure up to the ideal. They want the characteristics so well fixed that the fowls will produce a high percentage of progeny of the ideal type. When sufficient stock of such birds has been obtained specimens will be sent to State agricultural colleges and experiment stations to test their adaptability to different sections and conditions.

Demand Is for White Eggs.

It would take an exceptionally keen sense of taste to distinguish any difference between white and brown eggs at

breakfast, but human beings are such faddists that, in the opinion of some, the difference is there just the same. In New York the demand is for white shells, while in Boston the brown egg is just as popular.

"Some men will have only Dutch Belted cattle or Hampshire hogs," said one of the poultry specialists in the Department of Agriculture. "They are color enthusiasts. The liking for white-shelled eggs may have grown from associating the egg with the white poultry, an agreeable picture suggesting cleanliness. Actually, however, the brown-shell egg is every bit as good as the white until you arrive at the price in New York. The difference there sometimes is considerably in favor of the white."

At present all the general-purpose breeds of chickens are layers of brown eggs. Some of the leading markets demand the white egg, however, and as the price favors the white product it is important to supply it, if possible, and at the same time produce a fowl having weight in meat. The new Lamona is designed to do these things.

CONCRETE REINFORCEMENT; NOVEL FOUNDATIONS USED

How a reinforced concrete road holds up under heavy traffic is to be determined by the Bureau of Public Roads, United States Department of Agriculture, through experiments to be conducted on such a road now being built in the suburbs of Washington in cooperation with Arlington County, Va.

The road is being reinforced with many different arrangements of wire mesh and round steel rods embedded in the concrete. The joints will be either a crack left in the road, to be filled with tar, or simply a sheet of corrugated metal set on edge with the concrete poured around it. Some sections are to have joints running along the middle of the road, some across it, and some will be built without joints.

Of especial interest is the construction of ribbed sections. Instead of placing the concrete on a nearly flat subgrade, trenches will be dug in the subgrade running parallel to the edges of the road and also across the road. These trenches will be filled with concrete, giving the slab downward projections of concrete, and presumably strengthening it. Experiments also will be conducted to determine the strengthening effect of treating the earth under the concrete. On one section the earth for a depth of 6 inches will be mixed with cement, using 1 part of cement to 20 parts of earth. In some places where there is a grade a trench under the concrete will be filled with gravel. These trenches will slope toward the edges of the road and drain away any water that might otherwise accumulate under the surface.

Care of Milk and Its Use in the Home Subject of New Farmers' Bulletin

The consumer, rather than the producer, the distributor of milk, or the manufacturer of dairy products is the person for whose use a new Farmers' Bulletin No. 1207, Milk and Its Uses in the Home, has recently been issued by the United States Department of Agriculture. Milk is indispensable in the diet of children, because its solids are in such form that they can be easily utilized by the body, and because it is one of the best sources of the lime needed to build bones and teeth, and of vitamine A, a substance essential to health and normal growth. For adults also milk is an important supplementary food. It should be given scrupulous care in the home.

Milk and Its Uses in the Home.

Milk is an important food, because it contains proteins for tissue forming, fat and sugar for body fuel, and minerals, particularly phosphorus and lime, for building and repairing bones and other tissues. Milk is much richer in lime than most other common foods. A cup of milk, says the bulletin, contains at least seven times as much lime as two medium-sized potatoes, and nearly twenty times as much lime as two slices of white bread or 4 ounces of average beef. This is one of the reasons why it is such an excellent food for children for bone and tooth building.

Vitamines are recently discovered constituents of food. Relatively little is known about the nature of vitamines save that they are indispensable for normal health and growth, and that if they are left out of the diet for a long period so-called "deficiency diseases" may develop. Absence of vitamine A is believed to induce rickets. Vitamine B is thought to prevent polyneuritis and beriberi. Milk is exceptionally valuable for providing vitamine A, and supplies vitamine B in abundance. Perfectly fresh, raw milk often supplies vitamine C, but its scurvy-preventing power may be lost when it is heated or aged.

Each child should have a full quart of milk a day, if possible, is the advice given in the bulletin.

Reasons for Pasteurization.

While certified raw milk is usually the cleanest milk obtainable, it usually costs a little more than ordinary milk. Good pasteurized milk is satisfactory for children, if the juice of oranges, canned or raw tomatoes, or certain other vegetables and fruits is given to provide vitamine C. Directions for home pasteurization are given in the bulletin, together with an explanation of how bacteria get into milk, the harm they cause, and the effect of careless handling upon them.

A great many kinds of bacteria have been found in milk. Some of them cause the formation of lactic acid, which gives sour milk its characteristic flavor, while others cause milk to putrefy if allowed to stand long enough. The bacteria that cause serious diseases may also get into milk, and are sometimes spread in this way, resulting in epidemics. Especial precautions as to cleanliness on the part of those who produce and handle milk are strongly urged.

METHODS OF SAMPLING AND TESTING HIGHWAY MATERIALS

With the wide extension of improved highway construction throughout the United States, the need is increasingly felt for some system of standards for the testing of highway materials so that tests in one part of the country can be accepted in another.

The Bureau of Public Roads, of the United States Department of Agriculture, has held conferences on the subject with the various State highway departments, and last year a conference of testing engineers was held in Washington. The results of the conference are published in Department Bulletin No. 949, "Standard and Tentative Methods of Sampling and Testing Highway Materials." This bulletin of 98 pages gives 62 different tests and tentative tests covering nonbituminous and bituminous road materials, soils, and other substances.

In some cases the standard tests of the American Society for Testing Materials have been adopted in their original or slightly modified form, and in others not yet covered by the society original standards have been established. Lists and descriptions of apparatus for conducting tests, form for reports, and tables of comparative standards such as Baumé gravity, Centigrade and Fahrenheit temperatures, and metric and American measurements are also given for ready reference.

Government Hunters Shoot and Trap Great Numbers of Predatory Animals

Since 1915, when Uncle Sam turned hunter of wild animals that roam the western ranges and prey on the farmer's live stock, he has accumulated a game bag the like of which was never before witnessed in history, according to reports to the Biological Survey, United States Department of Agriculture.

By trap and gun the Government hunters have killed a total of 156,150 predatory wild animals. That period represents the time of Government activity in that kind of work. The result of this labor is of incalculable benefit to the farmer and stockman.

Campaign Covers Six Years.

Listing the predatory animals which go to make up the kill total, the inventories of the 6-year campaign are as follows: 406 bears, 17,842 bobcats and lynxes, 133,604 coyotes, 668 mountain lions, and 3,630 wolves. The figures represent the total game bag of the Government hunters, varying in number from 200 to 500, and the kill of State employees engaged in cooperative campaigns. The total shows the number of scalps taken; it does not include the large number of animals killed by poison. Probably the figures would be doubled if those animals, too, were placed in the list. Many poisoned animals, however, are never found.

During the fiscal year 1921 figures show the total number of predatory animals killed was 27,637, classified as follows: 89 bears, 2,468 bobcats and lynxes, 24,258 coyotes, 128 mountain lions, and 594 wolves. The average destruction by these animals is estimated to be, for each wolf and mountain lion, about $1,000 worth of live stock; each coyote and bobcat, $50 worth; and each stock-killing bear, $500 worth. In view of these estimates, an idea may be obtained of the tremendous damage averted by the Government's skilled hunters. Those figures are averages; in some cases, notably that of the Custer wolf, the depredations of individual predatory animals have reached much higher figures. The Custer wolf was estimated to have killed at least $25,000 worth of cattle before it was disposed of not long ago.

The figures cited above represent the Government's activities along this line in the 16 States of Arizona, Arkansas, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming. During the six-year campaign more predatory animals were killed in Nevada than in any other State, due largely to the fact that that State was the first to conduct a cooperative campaign with the Federal Government, starting in 1916. The total killed in Nevada, not including animals poisoned, is placed at 32,068. Utah comes second, with 21,712; Texas third, with 18,602; Idaho fourth, with 16,018; Oregon fifth, with 12,524; and Washington sixth, with 10,015.

Wolves Are Abundant in Texas.

Texas leads the 16 States in number of wolves disposed of, the total being 1,566 during the six-year campaign, or more than 40 per cent of the total number of wolves killed in all 16 States. Wyoming ranks second in number of wolves killed, with 480; New Mexico third, with 441; Montana fourth, with 339; Arizona fifth, with 183; and Utah sixth with 170.

In the number of coyotes whose scalps have been taken by Government hunters and in cooperative campaigns Nevada leads with 27,173; Utah is second, with 18,767; Texas third, with 14,830; Idaho fourth, with 14,454; Oregon fifth, with 10,351; and Washington sixth, with 9,631.

In six States the number of bobcats and lynxes disposed of during the six years runs into four figures, as follows: Nevada, 4,864; Utah, 2,669; Texas, 2,199; Oregon, 2,045; Idaho, 1,418; and New Mexico, 1,292.

Arizona and New Mexico account for nearly two-thirds of the total number of mountain lions killed, their totals being 255 and 170, respectively. In Utah 71 mountain lions were killed; in Oregon, 43; in Colorado, 36; in California, 29; and in Nevada, 24.

In all the States, except Arkansas, Oklahoma, and South Daketa, State authorities cooperate with the Federal Government in the campaigns.

DOMESTIC DATE GROWING SHOWN IN MOTION PICTURE

A new motion picture, "Dates, America's New Fruit Crop," has just been released by the United States Department of Agriculture. It was photographed in California in September. The film depicts the new date industry in nearly all its stages.

Date growing is limited to the hottest, dryest irrigated valleys of the southwest. Through the cooperation of the Bureau of Plant Industry and the agricultural experiment stations in the southwest, a steadily growing acreage, which was desert land within recent years, has been converted into date gardens. The Government date garden at Mecca, Calif., which has some of the best developed date trees in this country, was started from imported offshoots. Offshoots are now cut from domestic trees, carefully protected and rooted, the process requiring about a year before being ready for planting out in orchard form.

Details of the cultivation and the method of dealing with two scale insect pests which have been found on imported offshoots, are shown in the picture. The fact that American dates are handled more cleanly than any others in the world is brought out.

"Dates, America's New Fruit Crop" is one reel in length. It is intended for distribution by the department and cooperating institutions. Interested organizations, such as farm bureaus and chambers of commerce, may borrow the film, and authorized persons and institutions may purchase copies of it at $40 a reel.

BULLETIN PROVIDES DATA ON LOUISIANA FARM LABOR

Much valuable help in replanning a farm or in readjusting crop acreages so as better to utilize man and animal labor, and to determine the kind and sizes of machinery to be purchased, will be found in Department Bulletin 961, issued by the United States Department of Agriculture, on Standards of Labor on the Hill Farms of Louisiana. Although the data presented are strictly applicable only to the locality described, it is believed they will apply in large measure to the upland parts of the other Cotton Belt States where types of farming, kind of labor employed, and character of soil are similar.

Several hundred farmers in the hill section of Louisiana were interviewed in procuring the 677 detailed reports on the principal crops grown. These reports cover all the operations performed on each crop, the size of the crew, the implements used, and the farmer's estimate of the acreage.

The bulletin shows that the crops most commonly grown in the region described are cotton, corn, sweet potatoes, and cowpeas. These are grown by nearly every farmer, but many grow other crops also, though the acreage usually is small. The labor required in producing these crops and cost thereof are shown in detail. The bulletin may be had upon application to the Division of Publications, Department of Agriculture, Washington, D. C.

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WORLD'S COTTON CONDITIONS GENERALLY LOOK PROMISING

Economic conditions in Europe, outside of Russia, are gradually improving, according to William R. Meadows and William L. Pryor, of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, recently returned from a four months' trip through Europe and Egypt studying general market conditions for cotton, especially as bearing on the prospective demand for the American product. The department's representatives report that the consumption of American cotton may be expected to show a considerable increase, perhaps 10 to 13 per cent over that of last year.

Visits were made to England, France, Switzerland, Belgium, Holland, Norway, Sweden, Denmark, Germany, Poland, the free city of Danzig, Czechoslovakia, Austria, Italy, and Egypt. In addition, Mr. Meadows also visited Palestine. At all the cotton marketing and manufacturing centers conferences were held with Government officials, cotton men, bankers, and others, and much valuable information concerning conditions affecting American cotton was secured. The recent advance in the price of cotton, they say, has greatly relieved the cotton merchants, spinners, and bankers of Europe as well as similar lines of industry in this country. According to the best information obtainable, the cotton manufacturing world begins the new season with a clean slate, there being no large stocks of cotton or cotton goods held by manufacturers in any European country. In the judgment of the department's representatives, Europe must of necessity follow a "hand-to-mouth" policy in purchasing its supplies of raw cotton, and American holders should adopt a gradual marketing policy to conform to Europe's requirements.

NO INDORSEMENT GIVEN SYNTHETIC OR ARTIFICIAL SILK

The Bureau of Chemistry of the United States Department of Agriculture has given no approval to any process for the manufacture of synthetic or artificial silk. This statement is called forth by a number of inquiries to the department.

Considerable circulation has been given to an article saying that chemists of the Department of Agriculture and of the War Department had "put the seal of approval on successful experiments in perfecting the process for the manufacture on a commercial scale of synthetic silk, developed by America's new chemical industry built up during the war to compete with the German world-wide monopoly of the chemical and dyestuff industry."

The fact that the Department of Agriculture aided in perfecting the manufacture of aniline dyes after the supply from Germany was cut off by the war gave a semblance of credibility to the synthetic-silk story, and inquiries and requests for further information have come to the Bureau of Chemistry from many sources. The bureau has no information as to what firm is putting out the artificial silk referred to in the story, it has made no investigation of the process, and has not indorsed it.

STATE ROAD DEPARTMENTS GET MATERIALS INTENDED FOR WAR

Many and varied are the articles of surplus war material which have been distributed through the Bureau of Public Roads, United States Department of Agriculture, among the various States for road-building purposes. These articles were turned over by the War Department to the Department of Agriculture under the Wadsworth-Kahn bill, the sole stipulation attached to their use being that they be devoted exclusively to the construction and maintenance of roads. The distribution, which has been in process for some time, probably will be completed about the middle of next year. The total value of machinery, equipment, and supplies, independent of motor vehicles, which has been distributed is more than $30,000,000. More than 10 closely written typewritten pages are required for the list of articles alone. In the list are included many thousands of iron and steel bars, including 126,497 pairs of splice bars for 25-pound rails; 48,460 axes of various kinds; several hundred automobile bodies, and many thousand tons of spare parts; 12,398 brooms of various kinds; 275,085 feet of assorted cable; 60 cameras; 1,291 miscellaneous flat and gondola cars; 1,200 miscellaneous concrete carts; 117,350 feet of cord; 1,553 compasses of various sizes; 1,108 field desks; 24 grindstones; 4,660 hammers; 16,078 sets of assorted harness; 1,999 hatchets; 382,282 feet of various kinds and sizes of hose; 31,025 assorted lanterns; 14 sets of micrometers; 15,802 sheets of sand paper; 156,436 picks; 47,900 spark plugs; 307,647 fence posts; 25,000 gross tons of rails; 888,907 sheets of roofing metal; 494,860 feet of various kinds and sizes of rope; 67 salamanders; 378,812 shovels of various kinds; 47,892 spades; 1,757 tractors of various types; 4,773 wagons; 7,960 wheelbarrows; and wire of various kinds amounting to approximately 2,000 tons.

TO INVESTIGATE COST OF MOTOR-VEHICLE OPERATION

What it costs the Government to operate motor vehicles engaged in road building is shortly to be determined through a system of operative records recently installed by the Bureau of Public Roads, United States Department of Agriculture.

Out of the surplus war material turned over by the War Department for distribution among the States, the bureau has retained a large number of motor vehicles, which are used principally on forest road work in the West. These motor vehicles are kept at various central points where shops are maintained for repair work.

Complete records will be kept of all oil, gasoline, and supplies of every kind used by each vehicle. Even the number of tube patches will be kept. Record will also be kept of the number of hours of shop work required; of days idle, and why; of distances loads are carried and the character of the loads; and the gross income from the operation of the vehicles. The information thus obtained will be combined with similar information from some of the States operating the surplus war equipment turned over to them, and will form a valuable addition to the knowledge of the cost of highway transport.

Large Gain During Last Quarter in "Better Sires—Better Stock" Campaign

The "Better Sires—Better Stock" campaign, inaugurated by the United States Department of Agriculture in the autumn of 1919 to stimulate the replacement of low-class breeding animals with purebred sires and improved females, has gone ahead with increased impetus in recent months in spite of depression in the farming and live-stock business. During the last quarter year ending September 30, 894 persons were enrolled as having done away with all scrub and grade or crossbred sires and having determined to use only purebred sires henceforth for all classes of stock raised. This shows a promising increase over the two preceding quarters in which 714 and 333 persons, respectively, were enrolled. There was a corresponding gain in both animals and poultry reported by these owners, the combined total for the three months reaching 108,906.

Better-Sires Idea Is Widespread.

One of the encouraging developments of the campaign is the spread of this improvement idea throughout the country. Farmers and breeders of all kinds in nearly all the States are signing the pledge to eliminate poor blood in their herds and flocks. The leading State in the number of new members for the last three months was Virginia, with 287. Ohio was a good second, with 259, and exceeded Virginia by a considerable margin in the number of animals and poultry pledged to be bred only to purebred sires. Nebraska was third, with 153, and Kentucky fourth, with 145. Oklahoma, the next in order, although having comparatively few signers, showed a widespread interest, with 19 new counties joining the ranks.

Belmont County, Ohio, led the counties in the country in the progress made during the last quarter, with 54 new signers. Hardin, another Ohio county, had 45, and Licking County 39. Six counties in Virginia had more than 20 each. Three counties in Kentucky had more than 25 each, and three in Nebraska each exceeded 20.

In the two years that the campaign has been in progress 102,437 cattle have been listed by men who have signed the Better Sires—Better Stock pledge; also 11,829 horses, 493 asses, 49,357 swine, 72,321 sheep, 2,789 goats, and 404,717 poultry have been listed. This makes a total of 643,943 animals and fowls. Of the breeding stock owned by persons using only purebred males the highest percentage of purebred females is found among swine—64.7 per cent. Of the cows listed 36.8 per cent are purebred, of mares 12.6 per cent, of asses 33 per cent, of ewes 18.7 per cent, and of nanny goats 16.6 per cent. Of the female poultry entered by the signers 69.1 per cent were standard bred.

In the number of persons to whom certificates have been issued Virginia leads with 1,509, and Nebraska is second with 892. The latter State, however, leads in number of animals and poultry listed, having 51,066 and 101,633, respectively, against Virginia's 43,110 and 91,363.

States Which Lead the Way.

The 10 leading States in membership are Virginia, Nebraska, Ohio, South Carolina, Kentucky, Washington, Massachusetts, Texas, Vermont, and Connecticut. There is now a total of 5,184 persons in the United States who have pledged to use no more sires of any kind not of pure breeding. There are six pledges in the island of Guam and one in Porto Rico.

MANY CATTLE BREEDERS WANT TO HAVE HERDS ACCREDITED

The work of ridding the country of bovine tuberculosis through the accredited-herd system, which is based upon Federal supervision and the issuance of certificates by the United States Department of Agriculture, is making steady progress throughout the country. The State of Minnesota has been leading for some time in the number of fully accredited herds and the number of cattle certified free of the disease, but the report for September shows that the lead has gone to Wisconsin. The latter State now has 1,309 accredited herds containing 29,001 head of cattle. Minnesota has 1,171 accredited herds with 28,089 cattle.

The total number of herds accredited in the United States is 9,963. The number of cattle in the country certified free of the disease is 230,704. There are 71,999 herds and 848,244 head of cattle that have been tested once and, presumably, will subsequently be on the accredited list. There are 1,546,814 cattle in 103,046 herds now under Federal supervision.

The demand for inspections and tests under this tuberculosis clean-up plan is so great that the inspectors can not keep up. At present there are 15,671 herds on the waiting list. These herds contain nearly a quarter of a million cattle. During September 163,742 cattle were tested in the various States. Of these 6,093, or 3.7 per cent, reacted.

COW-TESTING ASSOCIATIONS VARY GREATLY IN SIZE

The practice of testing cows to determine their milk and butter-fat production and feed consumption by means of cow-testing associations has become widespread. There are now 452 associations of this kind in the United States, besides many in foreign countries. In most cases each association has one tester and no more cows than can be well handled, but there are some very large ones and some that are much smaller than the standard. The theoretical number of members in a cow-testing association is 26, which makes one member for the tester to visit each working day of the month. A member of such an association is supposed to have not more than 30 cows, as that makes a large day's work. If every member had that number, there would be 780 cows in the association, but few of them have that many.

There is no definite relation between the number of members in an association and the number of cows owned. In California there is one association that tests 4,000 cows and another that tests 4,400, and the number of members are, respectively, 46 and 100. Another in the same State has 86 members and only 1,439 cows; there are 12 associations in California with over 1,000 cows each. Ordinarily the number of cows in an association runs from 300 to 500, the average for the country being 429. The number of herds averages 24.8. To have more than one tester is a California practice, and one association in that State has three. In contrast to the large associations in California and a few elsewhere, there are some that are quite small. One in Massachusetts has 9 members and 125 cows; another in Kansas has 10 members and 85 cows; and in Michigan there is one with 4 herds and only 45 cows.

The use of cooperative cow-testing associations has resulted in great improvement in the quality of the dairy cows in the localities where they have been organized, by reason of the sifting out of the low producers and the discovery of good cows that might otherwise have been sacrificed.

The United States Department of Agriculture collects statistics of all the cow-testing associations and issues a direc-

tory of all those that are active on July 1 each year. It also assists in the organization of associations, working through the county agent if there is one in the community.

TO DETERMINE MERIT OF HOGS BY EXPERIMENTAL BREEDING

Although there is a higher percentage of purebred hogs in the country than of any other class of live stock, there is still much room for improvement. And there is much to be known concerning the relative merits of scrubs, crossbreds, and purebreds. To make some of the points clearer the Animal Husbandry Division, of the United States Department of Agriculture, is starting a breeding and feeding experiment that will contrast the results of using scrub, crossbred and purebred boars on scrub and crossbred sows. If appropriations provide sufficient money it may be that the effect of using crossbred and scrub boars on purebred sows will be studied.

Ten crossbred sows, of various breed mixtures, and 10 scrub sows of the razorback kind will be used. Half of each of those groups will be bred to a purebred boar; half of the first group will be bred to a crossbred, and half of the other group will be bred to a scrub. This same scheme of breeding will be carried on from generation to generation. Some of the offspring will be fed out and some of them will be kept for breeding before being fed out. Shoats from the different lots will be put in feed lots together and fed alike so that a fair comparison can be made. Some of these scrubs and crossbreds will be compared in feeding trials with purebreds raised on the department's experimental farm at Beltsville, Md. Some will be put into different experimental lots on various feeds.

Nearly everybody thinks the purebred is superior to the scrub, but there is disagreement among farmers about the merits of purebred and crossbred feeders. The department hopes that in due time its experiments will give results that will answer any doubts.

TIOGA COUNTY, NEW YORK, WORKS FOR BETTER LIVE STOCK

How closely is the prosperity of a community related to the proportion of wellbred live stock in it? Frequently it is asserted that purebred and high-grade herds and flocks are the result of wealth rather than the cause of it. In its effort to throw light on this question the United States Department of Agriculture has been especially interested in a survey conducted in Tioga County, N. Y., as a part of the program of work of the farm bureau, which believes in purebreds as a contributing factor in farm prosperity.

According to data furnished the department by Harold B. Fuller, of the farm bureau, the survey revealed the fact that only about 50 per cent of the sires used in the dairy herds of the county are purebred. The remainder are either grades or scrubs. About 20 per cent of the cows listed are purebreds. These animals are for the most part scattered through a large number of herds, showing that the average dairyman is working into purebreds as fast as financial conditions will permit.

In studying the census it is noticed immediately that the more prosperous sections of the county have high grades and purebreds. This is not confined entirely to the valley farms, since the town of Tioga contains the largest number of purebreds—35 bulls and 1,226 cows—of any town in the county. Newark Valley is in hilly country for the most part, but it is a prosperous farming section. It boasts of 68 purebred bulls and 94 purebred cows among 1,693 animals, or nearly 10 per cent. In another town in similar hilly country the agriculture is more backward. The purebred cattle are limited to 11 bulls and 18 cows out of 506 animals, which is but little more than 5 per cent. Similar differences were noted in six other townships surveyed.

The Tioga County Farm Bureau is starting on a campaign to eliminate the scrub sire from the herds of the county. At the fall county fair in September a purebred bull sale was held on the last day. The animals were sold to the highest bidder regardless of price. In some cases the farm bureau will arrange with men to own a sire as a community enterprise, and to exchange sires from one community to another as time goes on. Every effort is to be made to eliminate inferior stock and to place purebred bulls and heifers wherever possible on grade farms.

TESTING COWS MAY SAVE VALUABLE BULLS

"It was through the tester's suggestion that we started in with purebred cattle in earnest, which some day is going to give us a good purebred herd. Another thing the tester showed us is that we sold a registered bull to be slaughtered which had five daughters that averaged over 13,300 pounds of milk and 525 pounds of butterfat. A lesson like this will be remembered a long time."

This report, received by the United States Department of Agriculture, was from a member of the Cedar Grove Cow Testing Association in Wisconsin. A bull whose daughters can make such records is worth keeping as long as he is useful.

GAIN IN ASSOCIATIONS HAVING 100 PER CENT PUREBRED BULLS

One—two—three! One cow-testing association in Washington, two in Colorado, and three in Idaho have reached the mark of having 100 per cent of their herds headed by purebred bulls. This was the count in the spring of 1921 in the territory of the western office of the Dairy Division of the United States Department of Agriculture. In the fall of this year one-third of the associations in the Western States were 100 per cent in their use of purebred bulls. In some localities it is coming to be considered a disgrace for anyone to use a scrub bull.

CAREFUL SELECTION LESSENS BROODINESS, TESTS REVEAL

Broody hens, like wayward children, are a great discredit to their parents and a source of annoyance to all who have to do with them. That is why one of the greatest concerns of every ambitious and enthusiastic poultryman is to restrict the appearance and development of broodiness in his flock. The United States Department of Agriculture has found that broodiness can be reduced very markedly by careful, rigid, and persistent selection.

At the Massachusetts experiment station, where a detailed experimental study of broodiness has been made, it was ascertained that previous to the practice of selection the average hen in the flock was broody 3.88 times a year. After painstaking selection was practiced for 5 years, this tendency to broodiness was reduced so that the average egg producer in the flock developed broodiness only 0.36 times a year. A study of the correlations between broodiness and egg production shows that pullets that are very broody tend to lay relatively few eggs between their broody periods.

There is no one dominant cause of broodiness among poultry. Genetically, there occur 4 distinct types of nonbroodiness and one of broodiness. It is believed that birds showing only a slight tendency to broodiness belong in the same class as the nonbroody fowls, as each has about the same proportion of broody offspring. The determination of broodiness is complicated by the fact that birds that are not broody during the pullet year may become broody during their second or third laying season.

Good Hunting Season in Prospect— Game More Abundant Than in Years

This is to be a banner season for the American sportsman. Game of the sort usually hunted is more plentiful, generally speaking, than it has been for many years. In some localities there are more ducks and geese than the oldest inhabitants ever saw before. East of the Mississippi River migratory birds are making their southern flight in unprecedented numbers. The quail, or bobwhite, is present also in numbers not equaled for years. And the deer is not so scarce apparently as it used to be.

Great Numbers of Migratory Birds.

All told, the 5,000,000 hunters who will carry a gun into the field or to lake or river between now and New Year's are apt to find the happiest hunting grounds of many years, according to reports to the Biological Survey, United States Department of Agriculture, from United States game wardens stationed from Maine to Florida and from the Atlantic to the Mississippi. The department recently sent a letter of inquiry to each warden and a summary of their replies is given below.

In Maine there are a number of locations for deer hunting where indications point to good sport. Ducks are reported very abundant from numerous bays, with coot shooting good all along the coast. Pheasants were not very abundant, but ruffed grouse were reported plentiful all over the State, particularly in the northern portions. Wild geese do not stop in Maine on their flight south, but may be found in good numbers in Great South Bay, New York.

Through the ducking grounds of Virginia and North Carolina there will be more ducks and geese this season than there have ever been before—even measured by the memories of oldest inhabitants. Ruffed grouse, pheasants, deer, and bobwhites are reported plentiful. In Virginia State authorities have requested all county game wardens to report available accommodations for hunters, anticipating a big movement to the field.

In New York and Pennsylvania lack of water in some localities may make shooting somewhat below standard, but the flight of ducks and geese is reported to be unusually large and in general good hunting is anticipated on bays and lakes. Ruffed grouse, scarce for several seasons throughout its range, are to be found this season in abundance in New York and Pennsylvania. Good pheasant hunting may be had in New York, and the Adirondacks are reported to be well supplied with deer.

Wild Turkeys and Deer in Florida.

Florida boasts more ducks and geese and shore birds than ever before. Quail, wild turkeys, and deer are reported also to be more abundant than for several years. There are also a number of bears scattered over the State, and little trouble is anticipated for the deer or bear hunter who desires to get the limit allowed him under the law. There is a possibility, however, of the large quantities of ducks and geese in the northwest section of the State being scared away overnight, as they were last season, by an airship. The migratory birds do not take the presence of the birdman kindly and leave just as soon after his arrival as they can rise and fly.

The bobwhite is present as never before in west Tennessee and Mississippi. There is also good duck shooting all along the Mississippi River. From Vicksburg to Natchez splendid duck and goose shooting is anticipated. Excellent duck shooting is in prospect at Reelfoot Lake, Tenn., where the season opens November 1. Southern and western Kentucky report an abundance of quail.

Apparently there will be excellent duck shooting in the Lake Erie region along the northwestern border of Ohio. Pintails and mallards are coming fast into that territory. Michigan duck shooting has been excellent in the Monroe and Wayne County territory. Geese have not yet come south in this section. Ohio will have good pheasant shooting in the southern and southwestern sections. Ruffed grouse are reported present in good quantity in the State's northeastern counties.

Fine Prospects Through Middle West.

In Missouri the wardens are looking for good duck shooting about the last of October, to continue good for a month. Goose shooting is good in Mississippi County, Mo., where many farmers have from 10 to 25 decoy geese which can be rented at moderate prices. Most every wheat field there has its goose pits, ordinarily large enough for three hunters. Best dates for the goose shooting are regarded as November 15 to December 1. The bobwhite is reported to be plentiful throughout the State.

Ducks are reported in fair numbers this fall at their usual haunts in Minnesota. The prairie chicken shooting season there is over and the partridge hunters face a closed season. Quail are not plentiful, nor are deer, but moose are reported to be present in the usual numbers.

Good hunting may be had in Iowa at almost any point along the Mississippi or Missouri Rivers or any of the smaller streams. In the western part of the State there is an open season on ruffed grouse and wild turkey from November 1 to December 15, but they are to be found only in small numbers. However, all species of game birds in the State are reported as having shown a marked increase.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended October 26, 1921:

How to Select Foods: 1. What the Body Needs. By Caroline L. Hunt and Helen W. Atwater. Pp. 15, fig. 1. Contribution from the States Relations Service. Revised October, 1921. (Farmers' Bulletin 808.)

Directions for Blueberry Culture, 1921. By Frederick V. Coville, Botanist. Pp. 24, pls. 29. Contribution from the Bureau of Plant Industry. (Professional Paper.) (Department Bulletin 974.) Price, 30 cents.

Marketing Hay Through Terminal Markets. By G. A. Collier, Investigator in Hay Marketing, and H. B. McClure, Specialist in Hay Marketing. Pp. 52, figs. 6. Contribution from the Bureau of Markets and Crop Estimates. (Department Bulletin 979.) Price, 10 cents.

Preliminary Manufacturing Tests of the Official Cotton Standards of the United States for Color for Upland Tinged and Stained Cotton. By W. R. Meadows, Cotton Technologist, and W. G. Blair, Specialist in Cotton Testing. Pp. 12. Contribution from the Bureau of Markets and Crop Estimates. (Professional Paper.) (Department Bulletin 990.) Price, 5 cents.

Crop Rotation and Cultural Methods at Edgeley, North Dakota. By John S. Cole, Agriculturist, Office of Dry-Land Agriculture Investigations. Pp. 24, figs. 4. Contribution from the Bureau of Plant Industry. (Department Bulletin 991.) Price, 5 cents.

Killing Boll Weevils With Poison Dust. By B. R. Coad, Bureau of Entomology. Pp. 12, il. (Separate 842, Yearbook, 1920.) Price, 5 cents.

Getting Our Potash. By William H. Ross, Bureau of Soils. Pp. 14, il. (Separate 851, Yearbook, 1920.) Price, 5 cents.

Service and Regulatory Announcement, Bureau of Animal Industry. No. 173. Pp. 87–96. Price, 5 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

HOME DEMONSTRATION AGENTS HELP FARM WOMEN IN MANY WAYS

Methods of Earning Money Make Wide Appeal, but Sewing, Cooking, and Canning Demonstrations Meet with Popular Favor—Home Betterments and Improved Living Conditions Follow

REFINISHING OLD FURNITURE HOME-DEMONSTRATION WORK

New activities in home demonstration work deal with the refinishing of furniture in connection with the general movement to improve and beautify the farm home. As economy is usually necessary in making any changes in furnishings, all help in improving what is on hand is greatly appreciated.

In Monroe County, Iowa, the home demonstration agent, cooperating with the State home-furnishing specialist, held a series of meetings to train 10 township project leaders by demonstrations in refinishing furniture. The project leaders refinished an oak stand with wax and a walnut chest of drawers over 50 years old was done over with oil. It was donated by a Farm Bureau member for the community house in her township. The project leaders thought the owner would regret her promise when she saw the improvement which had been made in the heirloom.

Refinishing by painting was demonstrated on a chair, which was given an ivory-enamel finish. The care of furniture, including cleaning and polishing, was demonstrated on various pieces. Besides practical work there were discussions on the subject of good design in furniture, various woods commonly used in furniture making, and the advantages and disadvantages of the different finishes found on furniture, woodwork, and floors.

These women now have sufficient training to assist other women in refinishing furniture.

GIRLS MAKE NEW PICKLE FROM SURPLUS CUCUMBERS

An entirely new cucumber pickle has been developed by the United States Department of Agriculture in connection with club work for girls in the Southern States. Cucumbers that are too large to be pickled in the ordinary way may be used, as the product consists of the pulp only, cut up in pieces. The skin and seeds are discarded. The pickle is almost white in appearance, and is put up for the market in attractive jars under the "4H," or characteristic girls' club, trademark. It has long been the policy in Southern extension work for girls and women to find ways to convert locally grown products into cash, and this new pickle offers many possibilities.

The process is much shorter and quite different from that used with fermented pickles. Shallots and horseradish, with dill, tarragon, or ginger, give a distinctive flavor to the vinegar in which the pickle is prepared. The meat cores and juice scraped out of these large cucumbers may be saved and utilized separately to make a "white soy," which is excellent for flavoring gravies, sauces, or fricassees. This soy sauce, like the new pickle, is known as a "4H" product.

NINETEEN CLUB MARKETS FOR WOMEN IN SOUTH CAROLINA

Through the efforts of the State home demonstration agent, representing the United States Department of Agriculture and the State agricultural college, and the cooperation of county councils of farm women 19 club markets have recently been established in South Carolina. These markets have grown out of the economic needs of the farm women. The latest one was organized August 27 at Bennettsville, Marlboro County, and has proved most successful in bringing the surplus products of the country within reach of townspeople who require and can pay for them.

The town council, after being approached on the subject, agreed to build an attractive, substantial market house, screened and conveniently equipped, on the Bennettsville Courthouse Square. While the house was being built the club women of the county, through the home demonstration agent's efforts, were starting perennial gardens so that the market might be supplied with fresh vegetables the year around. The opening of the market was made a gala day by both town and country people. Although the vegetables, fruits, chickens, eggs, and other country products were not placed on sale till 10 o'clock, everything was disposed of by noon.

IOWA FARM WOMEN INDORSE HOME DEMONSTRATION AGENT

A conference of 200 Iowa farm women at the State fair on August 29 brought out the fact that home demonstration work is highly valued throughout the State. There were 66 counties represented, and a special effort was made to sound those present as to their feeling toward the work.

The influence of home demonstration was evident throughout the program, which was planned by the women themselves. Talks were given on child welfare work, on beautifying the farmstead, on boys' and girls' club work, home dressmaking, and community singing. Questions such as suitable recreation for country women and women's work in the county extension service were discussed.

That women should have reliable, competent advice available for the asking was thought to be most important. In addition to the help the home demonstration agent has given in solving household problems, she has done much to improve the social relations of farm women. One woman said that the advent of the telephone had brought a decline in sociability, that she knew of women on adjoining farms who had actually never exchanged a call, and that through the home demonstration agent such farm women in different communities were getting better acquainted.

Another benefit brought out in the conference was the development of leaders among the more diffident and retiring women. Organization through home demonstration activities brings out the unsuspected capabilities latent in those who have never before given time and interest to community work.

WASHINGTON STATE ADOPTS WIDE CHILD-FEEDING CAMPAIGN

Twenty-two counties in the State of Washington will concentrate this fall on special nutrition work for underweight children and their parents, under the supervision of home demonstration agents. Demonstrations of the best methods of bringing underweight children up to normal weight will be given and will be closely correlated with hot school lunch and supplementary nutrition demonstrations.

The interest in child feeding has been due largely to the statistics that have been accumulated during the past few years, indicating that a large number of American children of school and preschool age are underweight for their height. This condition apparently bears no relation to the prosperity of the com-

munity or to the financial or social status of the family. Irregular habits, late and hurried breakfasts, cold, unpalatable, and poorly selected lunches, delayed chores, late hours, lack of sufficient daytime rest, and the common use of tea and coffee are contributing causes to this very prevalent condition of malnutrition.

The plan in Washington State is to organize nutrition groups in individual communities until a sufficient number of nutrition workers and project leaders are trained for county and State-wide work. The cooperation of the county nurse is secured to weigh and measure all the children selected for such demonstrations. The children are examined by the nurse for defects. Then the parents of the children chosen are asked to sign agreements as home demonstrators to carry on the instructions given in the home.

Eight weeks are devoted to intensive work. Parents and children meet with the project leader each week, then for three months the progress of each child is carefully followed through monthly consultations with the parents, including weighing and measuring. A daily rest period, the use of at least 3 pints of milk daily, elimination of tea and coffee, and adherence to a diet recommended by the home demonstration agent, are the main elements in the systematic procedure for bringing underweight children up to normal.

BREAD CLUB GIRL WANTS TO BECOME A COUNTY CLUB AGENT

Helen Knoxen, of Barnes County, N. Dak., is a club member of three years' standing whose experience typifies the best results aimed at by the boys' and girls' club work. Briefly put, the club work is intended to develop a broad, intelligent viewpoint toward rural home making, and a fuller appreciation of the factors contributing to that end; a feeling of pleasure in household and farm tasks commonly viewed as drudgery; a desire for further education; and a community consciousness through local leadership. Helen's experience as a bread-club member has resulted in her determination to enter the State college of agriculture this fall for training that will fit her to become a county club agent.

Since first becoming a member of a bread club in 1918 Helen Knoxen has baked 3,500 loaves of bread. She does most of the baking for the family and helps her aunt to bake for the thrashing crew each season. In 1920 she was a member of the demonstration team that won the State championship. This year she is leader for a bread club of five girls, and from this club she selected and trained a demonstration team of three, which won the State championship for 1921.

Club work has given Helen, first, skill in a definite kind of work of great importance and financial value in her own home; bread making has been a source of joy and pride to her instead of a tiresome task. She has gained experience as a local leader and displayed considerable initiative in training two championship demonstration teams. Finally, by her decision to become a county club agent, she has shown that club work furnished the incentive to further education for herself and to still greater service to rural people.

New Charts on Food Selection for Teachers of Nutrition

Teachers and others carrying on nutrition work may obtain a new set of eight charts on food selection and meal planning prepared by the Office of Home Economics of the United States Department of Agriculture. They constitute a comprehensive and useful guide to a wise, correct diet.

One chart gives an explanation of the five food groups, and why each is needed. As a balanced food supply throughout a week insures a balanced diet, the proportion and amount of each kind of food which should be purchased for the average family is indicated. Each group is illustrated on a separate chart by a picture of selected foods from that group. These selections are intended to suggest good combinations, but many others may be made.

In order to facilitate the choice of foods according to the nutrients they contain there is a chart showing a great many common articles of diet, the unit of measure—pound, bushel, quart—by which each is usually bought, and the number of hundred-calorie portions contained in this unit of measure. Thus, the housekeeper can tell at a glance when the foods in the same group are the same price, which one yields the larger number of hundred-calorie portions for the money expended; or she can compute the cost of a hundred-calorie portion of any given food and compare that with the price of the food she desires to use.

The five pictorial charts showing a week's supply of each kind of food are based on the needs of the average family, consisting of two parents and three children. There is an additional chart showing how to compare one's own family with the average in order to arrive at a correct estimate of the amount of food to buy.

These charts should be found useful in connection with dietetic courses in colleges, high schools or hospitals, in women's clubs, parent-teacher associations, or wherever a thoughtful study of nutrition is being made. The charts are clearly printed on heavy paper 24 by 18 inches in size, and the series of eight can be obtained by sending 50 cents in cash or money order (no stamps) to the Superintendent of Documents, Washington, D. C.

WOMEN MAKING COMFORTS WHEN WOOL IS UNSALABLE

The fact that much wool has proved unsalable except at a loss has caused many farm women to consider the home utilization of some of the wool on hand. A few months ago a home demonstration agent from the United States Department of Agriculture and the State agricultural college gave a demonstration on the washing and carding of wool for comforters at a club meeting in Silverdale community, Kitsap County, Wash. As a result women all over the county have become interested in making wool comforters, and it seems as if there would be enough made to supply an entire future generation. Flour and sugar sacks have been found excellent for interlining.

STATE SHORT COURSES LIKED BY CLUB BOYS AND GIRLS

Hundreds of boys and girls in club work in the different States have profited during the summer by attending one of the short courses held at the State agricultural colleges, usually for those who have risen to leadership in their own communities and counties. The courses lasted as a rule from 5 to 10 days. The program for boys was generally along production lines, including instruction in live-stock judging, various crops, farm mechanics, or poultry; the girls were offered courses in bread making, clothing, gardening, poultry, canning and preserving, and various branches of home economics.

The Virginia Agricultural and Polytechnic Institute, at Blacksburg, Va., reports 227 boys and 127 girls at the annual short course given in July by the extension workers of the college and the United States Department of Agriculture. A very definite program was carried out each day. Setting-up exercises followed 10 minutes after the sounding of reveille at 6.15. At 6.45 the bugle sounded for breakfast. Classes began at 7.45 and

lasted, including an assembly hour and dinner period, nntil 3.30 in the afternoon. Recreation and games filled the time to supper, vespers, and "lights ont" at 9.30.

Similar programs were followed in most of the State short courses. A girls' clothing contest was the feature of the Texas gathering in July. Each girl competing was the prize winner in her own county. Each contestant had to make a cotton school dress, teddies, a princess slip or petticoat, and corset cover. She also selected all the accessories—shoes, hose, hat, etc.—to make a complete and harmonions costnme.

Louisiana State University considers last summer's short course for boys and girls the most snccessful of the eight that have been held there. Over 600 boys and girls attended, all of whom were chosen by merit from the organized clubs of which they were members. It was inspiring to watch the 18 young girls from different parts of the State, who had been trained only between May and July, as they deftly manipulated the dongh and produced tempting loaves. The uniformity of method and result made it exceedingly hard to judge which was best.

Domestic science teachers in regular schools, and even in high schools, considered the work of the club girls most unusual. The girls were trained in their own commnnities by home-demonstration agents or local club leaders.

MICE STEAL POISONED BAIT LAID DOWN FOR COYOTES

Hungry mice in Wyoming have recently become snch freqnent visitors to poisoned bait spread for coyotes that the work of the poison sqnad seeking to kill coyotes has been seriously interfered witb, according to a report to the Biological Survey, United States Department of Agriculture.

"Owing to the extremely warm weather," reads the report, "coyotes stayed in the rough and brushy places which made it necessary to pnt the poison bait in and around these places. It was noted that mice interfered materially by carrying away and eating the poison baits before the coyotes conld get to them.

"Poisoned grain was used in an effort to kill off the mice before exposing the baits for the coyotes, bnt in many cases there was no end to mice coming into poison stations." Notwithstanding these difficulties, the five men assigned to poison work made a satisfactory record. The total number of animals killed during the month by Government hunters in the district is reported at 542.

Will Wear Out New Highway Built Especially to Study Traffic Problems

Some time within the next few months a new road 2½ miles long is to be broken up in what is probably the most extensive study of road service ever undertaken in the United States. The road is located in Illinois, abont 12 miles southwest of Springfield, and parallels the Wabash Railroad. In the test road there are no curves. The grades vary from zero to four-tenths of 1 per cent, with an average grade of one-tenth of 1 per cent, the maximum and minimum grades extending over very short distances. The subgrade soil is uniformly a brown silt loam, except for two small stretches where it more nearly approaches gumbo.

Built of Common Road-Making Materials.

There are seven general types of paving in the road, the idea being to have represented the chief materials nsed in road making, so that engineers may stndy the effect of known and measured traffic of varying degree upon each kind of road. The seven types are:

Portland cement concrete.

Three and four inch lng brick constrncted monolithic and with a Portland cement concrete base.

Three and four inch lng brick constructed semimonolithic and with a Portland cement concrete base.

Three and four inch bituminons filled lug and lngless brick on Portland cement concrete base.

Three and four inch bituminons filled lng and lugless brick on macadam base.

Asphaltic concrete with and without binder conrse on Portland cement concrete base.

Asphaltic concrete with and without binder course on macadam base.

Built by Illinois and Federal Government.

The road, known as the Bates experimental road, was constructed by the division of highways, Illinois Department of Public Works and Bnildings, in cooperation with the Bureau of Pnblic Roads, United States Department of Agriculture. Actnal work was begun on the road in June, 1920, and it was finished some time ago. Since its completion the State and Federal Government engineers, by numerous daily observations, have been measuring the effect of heat, cold, moisture, and other elements upon its surface and on the subgrade. These observations have been taken on 63 sections, and much information has been obtained which will be valuable in building roads in the future.

It is planned to subject the highway to a rigidly controlled truck traffic. The trucks are to be weighed, and the weights will be gradually increased from a light load to one 50 per cent greater than that allowed by Illinois law. The number and weight of loads required to produce failure in the various sections will index the behavior of the various types of pavements when subjected to different kinds of traffic.

This information is of the utmost value. Knowing the conditions of traffic which are to be met, it will afford a means by which a proper paving can be selected to meet those conditions. It may lead to the saving of millions of dollars each year by preventing the construction of pavements that are fonnd to be incapable of resisting modern traffic.

Why some types of pavement fail and others hold up will be largely determined by the test. Why a roadway cracks also is being studied. At different times each section is observed and all cracks noted. In addition, a considerable nnmber of cracks have been measured by a micrometer.

Auto Trucks Will Make Thousands of Trips.

The traffic test of the road will be accomplished by means of a battery of 10 motor trucks driven by trained operators. The loading of the trucks will be increased after each 1,000 trips. The maximum wheel load probably will not exceed 12,000 pounds, which is half as much again as the legal load in Illinois.

When the test is completed months hence, the road will be wrecked by the test and the department highway engineers will be in possession of information which will result in more scientific road bnilding and resultant saving of many times the cost of the road destroyed.

PEA DISEASES FOUND IN MOST OF THE WESTERN STATES

Does pea root-rot, so destructive in the pea-canning sections of the Eastern and Central States, occur in the important seed-producing sections of the West, or is there some basis for the belief of the growers there that their climate and soil safeguard them in some way from loss? Is there any danger of the spread of pea diseases with western seed?

Answers to these questions have been made by specialists of the Bureau of Plant Industry, United States Department of Agriculture, who have studied the pea disease situation during the past season, which has been one of heavy loss in some of the older sections of the country, where pea root-rot has now become so common that many fields are unproductive and the continuation of the industry seems uncertain in some localities.

Much of the seed used in the East is grown in Montana, Idaho, and Utah, where the industry is relatively young. A survey of these States, however, indicates that there are incipient cases of pea root-rot in nearly all of the important districts and that under present conditions it will be only a matter of time before this type of trouble is as widespread as it is in the East.

In the same way the western potato growers, who formerly escaped root troubles, now find their yields very greatly curtailed by Fusarium blight, Rhizoctonia, and other fungus parasites which have increased with the longer culture of the crop. The western climate can not be depended upon to keep plants healthy. Growers should therefore watch carefully for the appearance of pea root-rot and practice the longest possible rotations to prevent its development. The situation is not one to justify undue alarm, but these findings should be taken seriously if the interests of the pea crop in later years are to be safeguarded.

The danger of spreading pea diseases with the seed is minimized by the department specialists, who point out that only one disease, the leaf and pod spot, is carried in this way, and this is not as general or extensive as has been believed.

DRIED SOY BEANS ARE GOOD EATING.

Until 1916 the soy bean had been used but little in the United States for food, and only as a special diet for persons requiring foods of a low starch content. Much interest has been shown during the last few years in the possibilities of the soy bean for food. The United States Department of Agriculture and many schools of cookery and domestic science have conducted successful experiments in utilizing the dried beans in the manner of the navy bean and the green beans when three-fourths to full grown as a green-vegetable bean. The variety and palatability of the forms in which the bean can be served make it a very desirable article of food, and undoubtedly it will grow in favor as it becomes better known. Soy-bean meal or flour may be used as a constituent of bread, muffins, and in pastry.

Hickory in Demand for Many Purposes; Timber Supply is Widely Scattered

Hickory timber, although held in seemingly vast amount by the forests of the country, may soon become insufficient to meet American manufacturing and woodworking needs. The increasing demand for this valuable species, together with the scattered character of its growth in the forest, has resulted in merchantable stands becoming more and more inaccessible and difficult to log.

The Stands Are Widely Scattered.

The Forest Service, United States Department of Agriculture, puts the country's present supply of hickory, distributed through 200,000,000 acres of forests, at 15,784,000,000 board feet. Of this the Central States have 6,791,000,000 feet, the lower Mississippi States 5,171,000,000 feet, the South Atlantic and East Gulf States 3,183,000,000 feet, the Middle Atlantic States 412,000,000 board feet, the Lake States 187,000,000 feet, and the New England States 40,000,000 feet.

One of the uses to which hickory is put is the manufacture of spokes for automobile wheels. The yearly demand upon the hickory reserves by this industry alone is tremendous, as there is much waste in getting the select stock necessary not only for spokes but also the rims of wheels.

Industries Compete for Hickory.

For the most part vehicle and agricultural implement industries compete with the handle industry for hickory and ash. These are located mainly in the Middle West, but now derive most of their wood supplies from the South. A large number of far-sighted organizations purchased more or less extensive hardwood tracts some years ago, from which they are now able to draw at least a part of their wood supplies. To secure hickory, which grows scatteringly over large areas, the vehicle and agricultural-implement industries originally maintained extensive buying, logging, and milling organizations in the South. They draw upon every conceivable source—farmers woodlots, small mills, large sawmills, and even specialized operations designed to secure hickory alone. These concerns in general carry in stock about a two years' supply of special-dimension stock.

Makers of automobile wheels say that they can still get the material required if they make sufficient effort and pay the price, but it is necessary to go farther and farther away for it. Many inquiries received by the Forest Service from vehicle implement makers, requesting information on possible substitutes for the woods used in vehicle making, is merely another indication of the difficulties in getting adequate supplies at the present time and of uncertainty as to the future.

Ten Different Kinds of Hickories.

Hickory is often referred to as if it were a single species, like red gum or yellow poplar. In reality there are 10 different kinds of hickory trees. For hickory-handle purposes those known as true hickories are most valuable. The pecan hickories include the water, nutmeg, and bitter nut varieties. The true hickories comprise shagbark, pig shellbark, pignut, and mocker nut. The handle industry is largely dependent on this last group of trees for its raw material.

The annual consumption of hickory by the handle trade is something over 120,000,000 feet board measure. Little, if any, of this material passes through the sawmills, for it is ordinarily cut and shipped to the handle factories in the form of log bolts or billets. All hickories do not give the same service when made into handles. The various parts of the same tree may show different properties, and the quality of the wood near the center is quite likely to differ from that nearer the bark.

The wood of the butt of a young hickory tree is of greater average toughness than it is when the tree is old. The wood of butt cuts of both old and young trees is tougher than that cut higher up the trunk. The handle manufacturers, for the most part, demand second-growth hickory, which consists of young stock of rapid growth.

Best Material for Handles.

Hickory is the best known material for certain classes of tool handles, such as the ax, adz, pick, hammer, and hatchet. There is a certain strength, toughness, and elasticity to hickory which nature has denied to other commercial woods. Some are stronger, many are harder, but the rare combination of the qualities mentioned is lacking in all of them.

The raw material for handles in the form of short log bolts is sometimes split into handle blanks in the woods, but the usual practice is to rip-saw the bolts into blanks at the factory. The split-handle blank is considered superior to the sawed blank in that it insures a straight-grain handle. On the other

hand, sawed blanks, though they are likely to show more cross grain, are more economical in the use of timber.

Hickory, due to its unrivaled properties of great strength, elasticity, and resiliency, is used exclusively in the manufacture of handles for golf clubs. The constantly increasing popularity of this sport has placed another demand on the hickory supply.

WALLACE NAMES STOCKYARDS WHICH COME UNDER PACKER ACT

(*Continued from page 1.*)

West Philadelphia Stockyard Co., Philadelphia, Pa.
Pittsburgh Union Stockyards Co., Pittsburgh, Pa.
Richmond Union Stockyards Co., Richmond, Va.
Southern Stockyards Corporation, Richmond, Va.
Union Stockyards, S. A., San Antonio, Tex.
Sioux City Stockyards Co., Sioux City, Iowa.
Sioux Falls Stockyards Co., Sioux Falls, S. Dak.
Union Stockyards Co., Seattle, Wash.
Union Stockyards Co. of Omaha, Ltd., South Omaha, Nebr.
St. Joseph Stockyards Co., South St. Joseph, Mo.
St. Paul Union Stockyards Co., South St. Paul, Minn.
Spokane Union Stockyards Co., Spokane, Wash.
Springfield Union Stockyards Co., Springfield, Ohio.
Inter-State Stockyards Co., Toledo, Ohio.
Toledo Union Stockyards Co., Toledo, Ohio.
Wichita Union Stockyards Co., Wichita, Kans.
Patrick Horan & Sons, West Albany, N. Y.

The formal notices bear the date on which they are officially posted. Section 303, Title III, of the act provides that "After the expiration of thirty days after the Secretary has given public notice that any stockyard is within the definition of section 302 (defining stockyards), by posting copies of such notices in the stockyard, no person shall carry on the business of a market agency or dealer at such stockyard unless he has registered with the Secretary, under such rules and regulations as the Secretary may prescribe, his name and address, the character of business in which he is engaged, and the kind of stockyard service, if any, which he furnishes at such stockyard." The penalty provided for in the act for failure to register as outlined above is "Not more than $500 for each such offense and not more than $25 for each day it continues."

Stockyard Service Defined.

Stockyard services are defined as "Services or facilities furnished at a stockyard in connection with the receiving, buying, or selling on a commission basis or otherwise, marketing, feeding, watering, holding, delivery, shipment, weighing, or handling, in commerce, of live stock."

Market agency is defined as "Any person engaged in the business of (1) buying or selling in commerce live stock at a stockyard on a commission basis, or (2) furnishing stockyard services."

A dealer, not a market agency, is defined as "Any person engaged in the business of buying or selling in commerce live stock at a stockyard, either on his own account or as the employee or agent of the vendor or purchaser."

Supplies of registration blanks have been sent to stockyard companies, and live-stock and traders exchanges at the markets referred to for general distribution, where interested parties may obtain copies, or when this is not convenient, they may be obtained direct from the Packers and Stockyards Administration at Washington, D. C.

Section 306 of the act provides that "Within sixty days after the Secretary has given public notice that a stockyard is within the definition of section 302, by posting copies of such notice in the stockyard, the stockyard owner and every market agency at such stockyard shall file with the Secretary, and print and keep open to public inspection at the stockyard, schedules showing all rates and charges for the stockyard services furnished by such person at such stockyard." The Secretary has not yet prescribed the form and manner in which such schedules shall be prepared, arranged, and posted, but these matters will be given consideration after a careful study of the schedules filed.

Proposed general rules and regulations for carrying out the provisions of the act with respect to stockyard owners, market agencies, and dealers, and proposed forms of reports to be made by commission men have been prepared and extensively distributed. These are not final, but are subject to criticism and revision. The Secretary's representative will hold public hearings at the following markets for the purpose of discussing the proposed rules and regulations with interested parties:

Hold Hearings to Discuss Regulations.

At Portland, Oreg., Imperial Hotel, November 8; Denver, Colo., Live Stock Exchange Building, November 12; Fort Worth, Tex., Stockyards Colliseum, November 14; Kansas City, Mo., Live Stock Exchange Building, November 15; Chicago, Ill., The Record Building, Union Stockyards, November 18. In addition, if there are interests that can not conveniently be represented at these places that desire to have their views considered at Washington after the conclusion of these meetings, arrangements will be made for such a final meeting if requests are received in sufficient number to warrant such action.

As soon as practicable live stock market supervisors will be placed at some of the principal markets and at such other stockyards as it may be considered necessary to have local representatives. In some instances one supervisor will be able to cover several markets. These positions are subject to civil-service laws and regulations.

"SANDINESS" IN ICE CREAM PREVENTED BY PASTEURIZING

The condition in ice cream known as "sandiness" is being studied by the dairy division of the United States Department of Agriculture, and it is now possible to make some suggestions to manufacturers and retailers that will assist them in freeing their product from this fault. This imperfection in ice cream has retarded the development of the industry to a considerable e tent.

Sandiness is caused by the formation of crystals of lactose, or milk sugar. These crystals, being only one-tenth as soluble as cane sugar, do not dissolve readily in the mouth. Some manufacturers claim to have had hundreds of gallons of ice cream turn sandy before it has left the factory, but sandiness is usually found to occur in much smaller quantities of ice cream, after it has been delivered to the dealer.

Although there are a number of factors that have not yet been thoroughly studied, these conditions are known to have an important influence on the number and size of these sand-like crystals. These known causes are the use of sandy condensed or evaporated milk, excessive lactose in the mixes, and fluctuations of temperature in storage. It has been found that ice cream subject to exposure, as most of it is in process of marketing, should not be made up with more than 5.85 per cent of lactose, which is equivalent to about 11 per cent milk solids not fat; any larger amount than this increases the tendency to sandiness.

Pasteurization is important in overcoming sandiness that may be present in the mix before freezing. If the mix is heated to 145° and slowly agitated for 25 minutes the crystals will be dissolved. Rapid freezing when there is a high lactose content seems to hasten the formation of the sandy crystals. Raising and lowering the temperature, a frequent occurrence in ice cream cabinets, is often a cause of sandiness. In connection with these temperature changes the time of holding has much to do with increasing the undesirable condition.

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TENTATIVE REGULATIONS TO CARRY OUT PACKER ACT

Made Public by Secretary of Agriculture Who Invites Objections and Suggestions from Those Interested.

Marketing Agencies and Dealers Required to File Schedules of Rates and Charges, and to Report to Shipper Within 24 Hours Details of Sales.

Tentative rules and regulations proposed for adoption by the United States Department of Agriculture in carrying out the terms of the packers and stockyards act with respect to stockyard owners, market agencies, and dealers have been made public by the department.

Under the provisions of the law the department will exercise supervision over the stockyards, market agencies, and dealers coming within certain definitions laid down in the law. The tentative rules and regulations are made public for the purpose of giving interested firms and individuals an opportunity to offer objections or suggestions at hearings held from November 7 to November 21 at Fort Worth, Kansas City, Denver, Portland, Oreg., and Chicago.

Must File Schedule of Rates and Charges.

The regulations provide for the method of registration by market agencies and dealers, and for their filing with the department the schedules of rates and charges covering the service they perform.

The rules propose that each stockyard owner and registrant shall furnish the department whatever information may be required, at the time of registering and from time to time thereafter, with respect to his business dealings, and that the department's agents may at any time during ordinary business hours inspect any and all property in the registrant's or owner's possession. Copies of all contracts between stockyard owners and packing, rendering, serum, fertilizer, and other establishments relating to the handling of live stock also shall be furnished to the department, the rules prescribe.

Provision is made for keeping an accurate record of numbers of receipts, sales, shipments, and local disposition of each class of live stock; for the observance of secrecy on the part of the department's agents with respect to disclosures made to the department by the registrants; and for keeping intact all records relating to the conduct of a registrant's business, the destruction of such papers being expressly forbidden except with the consent of the packers' and stock yards' administration.

A stockyard owner or registrant would be prohibited under the regulation from circulating any false or misleading report tending to affect the price of any live stock. A false or misleading report is defined in the regulations as follows:

Forbid Issuing Misleading Quotations.

"The issuance or making public of market quotations or any statements to any person regarding the price at which any live stock has been sold, which quotations or statements can not be verified from the records of such stockyard

(Continued on page 8.)

TEN REASONS WHY DAIRY FARMERS NEED TO COOPERATE

1. To assemble their products most economically at country points.
2. To establish and maintain plants for handling their products at country points.
3. To become a factor and wield an influence in the marketing of their products.
4. To undertake actual commercial distribution of their products.
5. To obtain commercial efficiency in the marketing of their products.
6. To stabilize the supply in accordance with the market demand.
7. To secure for producers the services of marketing experts.
8. To reduce the cost of supplies required in marketing.
9. To eliminate speculation and waste.
10. To secure direct and orderly distribution.

BUSINESS MEN IN CITIES COOPERATE, WHY NOT FARMERS?

CHEMISTS CAN HELP FARMERS OBTAIN LARGER ACRE YIELDS

Secretary Wallace Addresses Annual Meeting of Association of Official Agricultural Chemists.

Points Out That More Land Can Be Brought Under Cultivation Only Through Reclamation Work—Association Favors Adoption of Metric System.

Need for bending greater efforts toward enabling the American farmer to get a larger yield of crops to the acre was among the bigger problems brought before the Association of Official Agricultural Chemists at its thirty-eighth annual convention held at Washington, D. C., October 24–26. Practically all the virgin farm land of the country has been brought under cultivation, it was pointed out, and more acreage can be gained only by reclamation work; the expense involved in making this kind of land ready for the plow is so great that the yield in crops to the acre must be in proportion.

Wallace Points Out Opportunities.

Secretary of Agriculture Wallace, in addressing the convention on behalf of the department, drew the attention of the chemists to their future opportunities in this field. The question was also discussed by Dr. Harvey W. Wiley, honorary president of the organization, who spoke of the comparatively low average yield now obtained in the case of wheat and corn, contrasting it with what has been accomplished on some farms.

Referring to the service of chemistry to agriculture, Secretary Wallace termed it "a brilliant chapter in our scientific history." But the opportunities in the future, he said, "will call to you even more strongly than they have in the past and with a more definite call, if I can anticipate the future."

"We have been going through in this country," continued Mr. Wallace, "what we might call the period of argicultural exploitation, where we had unlimited areas of fertile lands, and all that was

necessary was for our people to go in and possess it, and we have been doing that up until the last 10 or 15 years—possessing that land and harvesting the fertility of the soil; and we have fed the people of this country at less than the cost of production, if you consider all of the factors which properly enter into that cost.

"Just now agriculture is in a very serious state of depression—the most serious we have ever experienced. We are, as it were, smothered in our own fatness. We have got more food than we know what to do with, especially as the people overseas, to whom we are accustomed to sell our surplus, are no longer able to buy freely; but we are going to get through that period, and when we get through it I think you will find that the agriculture of this Nation has entered into a distinctly new epoch or period.

"With population growing steadily, with all of our easily cultivated land taken up, we will have come to the time when increased production must come very largely from increased yields from the land under the plow. Some increases can come from land now covered with water, which may be drained, or from the dry land on which we can put water, or from the cut-over land which we can clear of the stumps and bring under the plow; but it will require a great deal of money to reclaim the swamp land, or that dry land, or that cut-over land, and it must come through a slow process, as the needs of the consuming population will bring prices large enough to cover the cost.

Store Corn Against Time of Need.

"That means they have to pay a higher price in the future relatively than they have paid in the past; and the chemist, it seems to me, will play an increasingly important part in the civilization of this country in the future. Take our situation now as to corn, that great surplus crop of which we have about a billion bushels more than we have any use for now. That sort of thing should not happen again. Before we come into a like period in the future the research chemists should have found some way by which we can take this great surplus and convert it into some useful product which may be stored, if necessary, against a time of need. The chemist must contribute even more largely than he has in the past in the utilization not only of surplus crops but to the utilization of waste products of all sorts."

The Secretary praised the service that agricultural chemists are rendering the country through their work, and assured the association of his cooperation. At the conclusion of his speech the association adopted a resolution thanking him for his expressions of esteem and tender of cooperation.

A plea for the use of the metric system in the United States was made by Dr. Wiley, who urged that legislation to this end should be sought of Congress. He drew attention to the various systems of measurement in use in this country as a contrast with the simplicity of one built on the multiples of 10. Congress, he said, originally recognized this when it established the decimal system of money.

Favor Metric System of Weights and Measures.

The association went on record as favoring the metric system by adopting a resolution approving "the proposal now under consideration by Congress that, after due notice, the metric system of weights and measures be made the legal system of the United States." As a means for furthering the introduction of the system, the association recommended in the resolution "that its members, in the purchase of supplies, designate and describe the same in terms of the metric system so far as possible."

Among the other resolutions adopted was one approving the aims and purposes of the Conference on the Limitation of Armaments, to be held in Washington, and expressing the hope that these may be attained.

By unanimous vote, Senator E. F. Ladd, of North Dakota, a member of the association for many years and a former president, was elected an honorary life member of the organization. Senator Ladd is a member of the Agricultural Committee of the Senate. Dr. C. L. Alsberg, formerly chief of the Bureau of Chemistry of the U. S. Department of Agriculture, was also elected to honorary life membership.

A large part of the sessions was given over to the reading of papers by members on the various lines of the association's work. At the conclusion of the meeting the following officers were elected for the ensuing year: President, F. P. Veitch, of the Bureau of Chemistry, U. S. Department of Agriculture; vice president, A. J. Patten, of East Lansing, Mich.; and secretary-treasurer, W. W. Skinner, of the Bureau of Chemistry. R. W. Balcom, of the Bureau of Chemistry, was elected chairman of the board of editors of the association's official publication. H. D. Haskins, of Amherst, Mass., and R. E. Doolittle, of Chicago, were made additional members of the executive committee.

EXPERIMENT STATIONS NEEDED TO PREVENT TIMBER SHORTAGE

Immediate Steps Should Be Taken If We Are to Avoid Dependence on Foreign Supplies.

Five-sixths of Original Timber Area Already Cut or Burned Over—We Can Not Indefinitely Consume 26,000,000,000 Cubic Feet a Year and Grow Only 6,000,000,000.

America must take measures to meet a critical timber situation which is yearly becoming more critical, the Forest Service, United States Department of Agriculture, reports in a review of conditions existing in the forests and the wood-consuming industries. The ax has cut to the heart of eastern American forests, and immediate steps should be taken to grow timber if this country is to avoid dependence on foreign supplies with drastic limitations in amount and the excessive prices which such a situation would impose.

"We have already cut or burned over five-sixths of our original timber area of 822,000,000 acres," says the report. "Three-fourths of our total utilization and practically all the high-grade material is still from virgin stands. We can not indefinitely use or destroy 26,000,000,000 cubic feet a year and grow only 6,000,000,000. We shall soon have to grow a much larger part of the 20,000,000,000-foot difference. Forest experiment stations are needed to find out and demonstrate how to grow this enormous volume of wood."

Ten Stations Are Needed.

Eventually 10 such stations, each with a technical staff of from 6 to 12 men, are needed, the service states—5 in the East, 3 in the Rocky Mountains, and 2 on the Pacific coast. At the present time there are 2 stations in the East and 1 in the West, the others, through lack of funds, being reduced to a 1-man basis. Where the proposed stations are needed is summarized as follows:

In the southern pine belt, where four-fifths of the original 650,000,000,000 feet have been cut since 1870, chiefly since 1890, and where the crest of production already has passed, and with it is going world leadership in the naval-stores industry. That leadership, it is stated, is passing to the artificially established maritime forests of France.

In the Lake States, where a supposedly inexhaustible supply has disappeared precipitately within the past

20 years and where utterly inadequate steps to reforest are being made.

In the Northeast, where timber problems of New England and northern and eastern New York press for solution, with the Government doing no research work of that kind whatever.

In the Alleghenies, where forest problems of Pennsylvania, southern and western New York, Ohio, Maryland, New Jersey, and Delaware are also receiving no investigative attention from the Federal Government, although production has fallen spectacularly and a tremendous acreage is barren of trees at this time.

In the Appalachian Mountain forest region, chief source of the hardwood supply, where production has decreased nearly 60 per cent in 9 years.

In the various Rocky Mountain ranges, where 3 stations would cover, respectively, central and northern Idaho, eastern Washington, and western Montana; the central Rocky Mountain region; and Arizona, New Mexico, and southern Utah. Artificial reforestation probably will be necessary there to place timber on 5,000,000 acres of waste lands.

On the Pacific coast—2 stations—where over half of the present remaining timber supply is located.

Cost Would Be Very Small.

The total cost of the stations proposed, it is stated, would average ultimately for the forest area of the United States an annual expenditure of one-tenth of a cent an acre for investigative work.

"Forest experiment stations are needed," the report adds, "to make land productive which otherwise would not be used. This function has particular significance when we are adding from 8,000,000 to 10,000,000 acres each year to the 81,000,000 acres already wholly waste, but capable of large production, and when we have 245,000,000 acres for the most part producing much less than their capacity in both quantity and quality.

"No time should be lost in learning methods to keep fully productive the 137,000,000 acres of virgin stands which we still have left. We have the opportunity to utilize a total of 463,000,000 acres of forest land in the production of wealth, for the support of a large timber-growing industry comparable to farming, and for the maintenance of other large industries."

Detailed surveys of the situation in the different forest areas of the country are contained in the report, Forest Experiment Stations, Circular 183, Department of Agriculture, copies of which may be obtained free of charge upon application to the department at Washington.

NATION MUST TURN ATTENTION TO REFORESTATION PROBLEMS

There Is More Idle Timberland in the United States Than Forests in Western Europe.

Chief of Forest Service Points Out Enormous Use of Timber in Industry and for Building Purposes—Nonagricultural Land Must Be Made to Grow Trees.

"The United States produces more than half of the entire lumber cut of the world," says Col. W. B. Greeley, Chief of the Forest Service, United States Department of Agriculture, "and uses 95 per cent of that amount right here at home. The exhaustion of our timber supply is coming about, not because we have used our forests freely, but because we have failed to use our timber-growing land. The problem, in a nutshell, is the enormous area of forest land which has been so logged and burned that it is producing little or nothing.

"We have more than 80,000,000 acres, an area greater than all the forests of France, Belgium, Holland, Denmark, Germany, Switzerland, Spain, and Portugal, which have been denuded to the point of absolute idleness so far as the production of any timber of commercial value is concerned. We have other enormous areas of cut-over land now growing but a fraction of the amount of timber which they might produce. And we are adding to these areas of idle or largely idle land from 10,000,000 to 15,000,000 acres every year as destructive logging and still more destructive burning progress.

MAKE EVERY ACRE WORK.

Make every acre work to its full capacity. Make every acre of poor, wet, rough, or inaccessible land work to its full capacity in growing timber. Make every idle acre work.

Reforest Cut-Over and Burned Lands.

"This situation," the Forester points out, "can not long continue without grave consequences. If we are to remain a Nation of wood users, we must become a Nation of wood growers. By some means or other we must see to it that forest lands not needed for agriculture are not allowed to lie idle but are kept at work growing timber.

"Where Americans need more forests," states Col. Greeley, "is largely on these 80,000,000 timber-denuded acres, which could be made productive again with proper attention and protection against fires." Some of the chief reasons why these forests are needed are as follows:

"Our manufacturing centers are drawing at an enormous rate upon our timber supply—from two to four times as fast per capita as the country at large.

"Our railroads require 125,000,000 wooden crossties annually to maintain their roadbeds in fit condition and take care of new construction.

"Our average American uses 125 pounds of paper a year—made largely from wood—and the growing circulation of our newspapers and magazines is increasing that very generous per capita allowance.

"Our average well-kept farms—using the upper Mississippi Valley as an instance—require 2,000 board feet of lumber annually for repairs and improvements.

"Our Florida citrus crop alone, for marketing, takes 13,000,000 boxes, of 5½ board feet each, every year."

METHODS OF FIGHTING CONTAGIOUS ABORTION

Of all the diseases that threaten the success of cattle breeders, few are more destructive than contagious abortion.

That farmers may learn more about fighting this insidious enemy of the herd the United States Department of Agriculture will present the facts about it in its exhibit at the grain and hay show to be held in connection with the International Live-Stock Exposition at Chicago November 26 to December 3.

This disease is thought to be rapidly attaining the head of the list of enemies of beef and dairy herds. It is the cause of countless "nonbreeders," and many cows that carry their young the full period are a source of danger to the herd after calving. Feeds soiled with discharges and afterbirths of affected animals are to a great degree responsible for its spread. It is even more difficult to control than tuberculosis, and is not cured by any known medicinal remedies. At present the only hope for success against it is in prevention, and prevention means the keeping out of new animals until they are known to be free of the disease, the providing of maternity stalls, and the isolation of aborters until the period of danger is over.

Burn wood! How about the woodpile? Winter is upon us—labor is plenty—money is short. You'll have to keep warm, so burn wood!

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

Prompt notice of change of address is requested. Both old address and new address should be given.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

MANY EXPOSITIONS WANT FEDERAL DAIRY EXHIBIT

If the interest shown in the exhibits put on by the Office of Exhibits, United States Department of Agriculture, at the National Dairy Show at St. Paul is a reliable indication, there is a rapidly growing appreciation of the work being done by the Dairy Divison and other branches of the department to help solve problems of milk production, distribution, and manufacture. As a result the exhibits have been in great demand by various dairy expositions and conferences in different parts of the country.

Manufacturers of dairy equipment and supplies have come to look upon the dairy show not only as a place to advertise their goods but also as a place where they may learn of the advances that are being made in dairy science and practice. One large manufacturing concern brought in 125 of its field men from various points over the country and asked that they give particular attention to the Government exhibits showing effective methods of teaching better dairying. These men were taken through the various booths in small groups by representatives of the Dairy Division and the Bureau of Markets and Crop Estimates, who discussed the different kinds of work that is being done for the dairyman and the manufacturer of dairy products.

Sufficient funds are not available for the department to move the exhibit to places where it is wanted, but some organizations have offered to pay the costs of transportation. The president of the Pacific International Live Stock Exposition, at Portland, Oreg., early in November, has asked for the Government exhibit, and the exposition company will pay the transportation charges from St. Paul to Portland and back to Washington. Because of its educational value, it is probable that the exhibit will be kept out for some time, even though the department has not sufficient funds to pay for such movements.

LONDON MEAT MARKET GLUTTED; PRICES SHOW MARKED DECLINE

The London meat market is glutted, according to a cable to the United States Department of Agriculture from the American Agricultural Commissioner at London, dated October 21. Prices have slumped and cold storages are filled. Approximately 1,000,000 carcasses of lamb and mutton are being held in refrigerated ships in the Thames. The widespread drop in prices is said to be due to poverty. The British Government is holding approximately 2,240,000 pounds of mutton. The supplies of home-killed mutton are plentiful, due to the high prices of feedstuffs.

The wholesale price of Scotch beef has decreased 4.8 cents per pound, and of chilled beef 8 cents, since September 21. New Zealand lamb is selling at 14.4 cents per pound wholesale, a drop of 4.8 cents in one month. The price of mutton has decreased by 1.6 cents since September 21 and is now selling at 12.8 cents per pound wholesale; ewes at 9.6 cents. Heavy supplies of meat are reported to be afloat.

VARIOUS FACTORS INFLUENCE FROST INJURY TO POTATOES

Jarring and rough handling when at a low temperature greatly increases the damage to potatoes by freezing, according to investigations made by the United States Department of Agriculture. It was also found that potatoes freeze more quickly when exposed to a rapidly diminishing temperature than when the temperature diminishes slowly. There are two general classes of frost-injured potatoes—those frozen solid and subject to collapse immediately on thawing and those that show evidence of injury only on being cut open.

Frost injury seems to be the result of actual ice formation within the potato tissue. It was found that where the temperature of the storage place was reduced gradually it could be carried to several degrees below freezing point before actual freezing took place, and that it was possible gradually to warm the potatoes and restore them to normal without their suffering injury. The actual freezing point of potatoes was fixed at from 2 to 3½ degrees below the freezing point of water.

The effect of jarring upon undercooled potatoes is considered extremely important to growers and shippers, since under some circumstances it would be entirely possible that a lot of potatoes, or even other products, might be undercooled considerably below the freezing point and escape injury if they remained undisturbed until their temperature was above the freezing point. If it should be found necessary to move such a lot in order to protect them from low temperature, this should be very carefully done, having in mind the danger of freezing as the result of jarring or jolting.

STUDY EFFECT WHICH FORESTS EXERT UPON STREAM FLOW

Investigation of the effect of forests upon stream flow is being made jointly by the Forest Service and Weather Bureau of the United States Department of Agriculture, at a station in the comparatively light forests of the Colorado Rockies. "When completed," says the department, "this investigation will furnish information of great value and significance for this and similar sections of the United States where agricultural development is dependent upon stream flow for irrigation."

Somewhat similar work has been done in Europe, notably at Zurich, Switzerland. Observations, extending over 18 years, were made upon two small watersheds, one wholly, and the other one-third, forested.

"On a proportional basis," the Forest Service says, "the total annual stream discharge was approximately equal on the two Zurich watersheds. In short, heavy rainfalls the maximum run-off per second in the forested watershed was only one-third to one-half that on the lightly forested watersheds, and the total flood stage discharge usually one-half. Although, as a result of very long, heavy rains, the run-off was the same after the forest soil had become saturated, the forest cover appreciably stabilized the stream flow and reduced the extremes of both high and low water. The forest cover was also beneficial in preventing landslides, which were common on steep, unforested slopes during heavy rains, and in preventing erosion, which greatly increases flood damage throughout the entire course of streams."

Methods of Preparing Pork Products on the Farm for Sale or Home Use

Every farmer can well produce the pork and pork products which are consumed on his farm, for selling hogs and buying pork involves profits, but not to the farmer engaged in the practice. This point is brought out in Farmers' Bulletin 1186, published by the United States Department of Agriculture, which tells how hogs should be killed and describes different methods of curing and canning pork on the farm. Highly nutritious and palatable pork products for home use are easily made, says the bulletin. Pork can be cured and canned in a number of ways, and the variety of products affords a supplement to the daily meals.

Young Hogs Yield Best Meat.

A hog of medium condition, gaining rapidly in weight, yields the best quality of meat. A reasonable amount of fat gives juiciness and flavor to the meat, but large amounts of fat are objectionable. Smooth, even, and deeply fleshed hogs yield nicely marbled meats. The meat of old hogs will be improved if they are properly fattened before slaughter, but young hogs from 8 to 12 months old are best for furnishing the home meat supply.

The bulletin emphasizes especially the importance of selecting only healthy hogs for slaughter and of thoroughly cooking all pork products used for food.

Even if the hog has been properly fed and carries a prime finish, the best quality of meat can not be obtained if the animal is not healthy. There is always some danger that diseases may be transmitted to the person who eats the meat, particularly if it is not thoroughly cooked.

Hogs intended for slaughter should not be kept on full feed up to the time of killing. It is better to hold them entirely without feed for 18 to 24 hours prior to that time, but they should have all the fresh drinking water they want. It is essential to have the proper equipment for rapid and skillful work at killing time. Such equipment includes a straight sticking knife, a cutting knife, a 14-inch steel to keep the knives sharp, a hog hook for holding the animals, a bell-shaped stick scraper, a gambrel for holding the hog to facilitate cleaning and cutting the meat, and a meat saw. If the hog is not too large, a barrel is a convenient receptacle for scalding.

Complete directions for killing and cleaning a hog, properly cutting the portions of meat, rendering lard, making sausage, smoking cured meat, and home canning of pork and pork products are described in the bulletin, copies of which can be obtained free on application to the Department of Agriculture.

POISON BAITS EFFECTIVE EVEN FOR WISE OLD WOLVES

Even the wise old wolf will fall for the temptation of poison if the bait is properly prepared and placed. Such is the conclusion proved, in the face of long-standing belief to the contrary, by predatory animal inspectors employed by the Biological Survey, United States Department of Agriculture.

"We arrived on the range one evening," reads a recent Arizona report, "and killed a yearling colt to be used as a drag. That night we scattered perhaps 150 poison baits. The next day we made another drag with an automobile, and along this drag line put out about 300 baits. That night the wolves came in and killed a fine colt; but they continued over their regular route of travel until they crossed the drag line, where each picked up a poison bait. The pair, both old animals, were found about one-half mile from where they picked up the bait.

"One of them had lost a front foot in a trap, perhaps two or three years previously. Stockmen of that range are now thoroughly convinced that poison will do the work. When we first arrived there and proposed to poison the wolves, the stockmen were skeptical; in fact, I afterwards heard that one man said 'Let the tenderfoot try it out and then he'll be convinced that wolves can not be poisoned.'" In addition to the two instances cited above, two more wolves were killed by poison recently, on the range south of Nelson, Ariz., and similar cases have occurred in other States where governmental operations against wolves are in progress.

TUBERCULIN TEST MADE AT COST OF EIGHTEEN CENTS PER HEAD

The "area plan" of eradicating tuberculosis of live stock is now well established in many States. By this plan, an area of considerable size, generally a county, is freed from tuberculosis by the systematic testing of all cattle and the removal of reactors. It has been accepted by the live-stock owners, as they evidently believe the plan is a practicable one. The work can be conducted in a much shorter time and at less expense than the accredited-herd work. Then, too, it means the suppression of the disease among all the herds in a given area, in contrast with accrediting herds here and there which may be in close proximity to infected herds on adjacent farms.

As a demonstration of the feasibility of tuberculin testing of all the herds within a county, no better example can be given than the work done in Wahkiakum County, Wash., during July and August, 1921. The work started in that county August 3 and was completed September 9. Every herd in the county with the exception of two was tested by Dr. L. V. Hardy, veterinary inspector of the Bureau of Animal Industry, United States Department of Agriculture.

One of the two herds not tested consisted of only two animals. This owner desired to have a test applied but was unable to catch the animals, which were running in a large pasture and were very wild. The other owner refused to submit to the test until just as the inspector was leaving the county.

The work was carried on principally in cooperation with the farm bureau members. They furnished conveyance whenever there was a member who owned an automobile. The county appropriated funds to pay operating expenses of the automobiles, and also to hire conveyances when necessary. Farm bureau members cooperated so well that not a single day's time was lost on account of transportation. When it is considered that the work was done without any compulsory laws or regulations, and was wholly a voluntary proceeding, it is felt that the county test was extraordinarily complete.

The actual number of herds tested was 367, comprising 4,039 cattle. The test revealed 58 tuberculous animals which were confined to 12 herds, making the total of 3½ per cent of infected herds and 1½ per cent of infected cattle. Post-mortem examination on the 58 reactors revealed 100 per cent lesions of the disease. The actual test was completed at an expense of a little less than 18 cents per head, including $100 appropriated by the county and a pro rata share of the overhead expense of the bureau office in the State of Washington. It is planned to have an inspector return to Wahkiakum County about November 15 to retest herds that were found infected, and, if possible, to test the two remaining herds.

Tests of Pine-Product Disinfectants Interest Bacteriologists and Chemists

The disinfectant action, method of production, and chemical properties of pine-oil and pine-distillate product emulsions are reported in United States Department of Agriculture Bulletin No. 989, by the Bureau of Chemistry and the Insecticide and Fungicide Board, as the result of a bacteriological and chemical study of these products.

The work was undertaken for the purpose of determining the physical, chemical, and disinfectant properties of pine-oil and other pine-distillation products in order to secure data to assist in the detection of the adulteration of commercial products, as well as to check up the statements concerning the deterioration of pine-oil disinfectant and its peculiar behavior against certain pathogenic organisms.

Will Help Those Who Use Disinfectants.

The results reported will be of interest to bacteriologists and chemists who are concerned with testing pine-oil and pine-distillate product emulsions and to hospital authorities, dentists, sanitarians, and others who use these products as disinfectants. The investigators found that these products, while effective against *B. typhosus*, are not effective against *M. aureus* and *B. anthracis*, and should not, therefore, be used for general disinfecting purposes.

When using pine-oil emulsions against *B. typhosus* it is safer for practical purposes, according to the report, to employ a solution five times the strength capable of killing the organism in 5 minutes. Thus, a product showing by the Hygienic Laboratory method a killing power of one five-hundredth should be used in a one one-hundredth, or 1 per cent dilution. If the product will not give a dilution of such a concentration and remain completely emulsified, it should not be used as a disinfectant.

Copies of Bulletin No. 989, giving data upon which conclusions are based, may be had upon application to the Division of Publications, Department of Agriculture, Washington, D. C.

CORN BELT CATTLE FEEDERS MAKE MUCH USE OF SILAGE

It has not been many years since corn silage was considered merely as a feed suitable chiefly for dairy cows, but it has rapidly attained a wide use among beef producers in the Corn Belt. Now all feeding that is not done on pasture may be divided into two classes—that in which silage is fed and that in which it is not fed. As a whole the two classes are now about equally divided, but in some States the difference is very marked. Surveys by the United States Department of Agriculture covering the last two winters showed that 83 per cent of 4,556 cattle fed in Indiana received silage in their rations, 87 per cent of 7,280 in Illinois, 30 per cent of 8,290 in Iowa, 8 per cent of 6,129 in Nebraska, and 50 per cent of 8,964 in Missouri.

Where silage is used it supplies most of the roughage. Nearly all the silage is made from corn, probably 99 per cent of the total. Sorghum, sunflowers, and legumes are sometimes used in localities on the extreme edge of the Corn Belt, such as western Kansas and Nebraska and western and northern South Dakota. A greater use of silage depends largely upon the supply and value of other roughage.

The main facts about the use of silage in fattening cattle are thus summarized by the department: The greater the proportion of silage to corn the cheaper the gains. The greater the quantity of corn the less silage consumed. Silage will not fatten cattle unless accompanied by concentrates. In silage most of the cornstalk is used. Cattle feed on silage will eat more straw or stover. If purchased protein feeds are added to the feed, the resultant manure is richer. Silage-fed cattle do not finish quite as well as those strictly dry-fed. Adding corn to the silage produces a better finished animal that usually brings a better price, and it also results in better gains on hogs that follow the cattle. Silage-fed cattle shrink more than those fattened without silage. The price of corn and the value of other concentrates should be a guide as to the limit of corn in a silage ration.

GOVERNMENT TEXTILE EXHIBIT ATTRACTS MANY VISITORS

The exhibits of the United States Department of Agriculture displayed at the Southern Textile Show held recently at Greenville, S. C., were visited by practically every person who attended the exposition, according to all reports. The greatest interest in the exhibit was shown by cotton-mill owners, managers, and buyers, who were able to learn of many factors bearing on the strength and uniformity of yarn which they had not heretofore appreciated.

The exhibit included typical bolls, seeds, and staple from each of the different groups of varieties of cotton grown in the United States, and illustrated the relation of variety to length and uniformity of staple. The United States official standards for both white and colored cottons, sea-island cotton, and American-Egyptian cotton were on display.

A panel illustrated the processes of cotton manufacture and testing and showed the character and the percentage of waste in each stage of manufacture for each of the principal standard grades. Another panel illustrated many features of what is known as "country damage" and the losses due to careless handling. Still another showed the channels through which cotton moves from the grower through the exchanges to manufacturers. In addition there were five models of warehouses showing the details of construction; first, a simple frame warehouse with brick fire walls; a brick warehouse with timber framework; model warehouses of reinforced-concrete construction, both simple and multiple deck; and finally a dual-purpose warehouse, suitable for the storage and sale of cotton and tobacco. Complete plans and specifications of each were on hand for distribution.

A radio news station was in operation, effectively showing this feature of the department's work in disseminating market information for the benefit of growers, shippers, and the trade generally. This was of interest not only to those who appreciated its possibilities in connection with the progress of diversification of farming in the South, but was the center of attraction to the younger visitors who will doubtless become the receivers of radio market news in the South in the future.

PROGRESS IN SWEET POTATO STORAGE AND CONSERVATION

The work of the United States Department of Agriculture for better utilization of the Nation's sweet potato crop by better storage and disease-preventive methods has aroused widespread interest throughout the sweet potato producing States, which include more than 20 of the 48.

The department has published three farmers' bulletins useful to those interested in the production, harvesting, storage, and marketing of sweet potatoes, which can be had on request. They are: No. 970, Sweet Potato Storage; No. 999, Sweet Potato Growing; and No. 1059, Sweet Potato Disease.

A Flock of Sheep can be Maintained on Many Farms Besides Other Stock

Recognizing the adaptability of sheep to a wide range of territory, extension workers of the United States Department of Agriculture and the State agricultural colleges have steadily encouraged the maintenance of a flock of sheep in addition to other live stock on the farm in sections where farm flocks can be profitably handled. The introduction of purebred stock and the establishing of breeding flocks has been an important feature of extension work in Connecticut and Pennsylvania in the East, and in Utah, Washington, and New Mexico in the West.

Ram Club Comprises Three Flocks.

In Pennsylvania purebred ram clubs have been organized and are operating successfully. These clubs consist of three units of farm flocks each. A ram is purchased for each unit. He is used in each unit two years and then transferred from one unit to another until he has been used in all three units of the club. The county agent in McKean County aided in organizing three ram clubs during 1920, providing nine good rams of Shropshire breeding for the flocks of members of these clubs. All of these rams are grandsons of Minton's 51, one of the greatest show rams at the International in the past few years. Rape pasture is being used to fatten lambs. These clubs will also procure purebred Shropshire ewes, so that each member will eventually have a purebred flock.

Through the assistance given by the sheep specialist at the State agricultural college nine ram clubs were organized in Pennsylvania during 1920. $3,000 worth of purebred sheep were selected and purchased by farmers in the State in this connection. Supplementing the organization of these associations and the introduction of new stock, 35 shearing, docking, and dipping demonstrations were held, attended by over 700 people.

Utah has made notable progress in making the farm flock a factor of importance in its live-stock production. In Iron County, where practically all the rams are now purebred, the sheep breeders have concentrated on the Rambouillet and grow enough stock of this breed to supply largely the demand in southern Utah for purebred animals. An outgrowth of this work is the Rambouillet sheep show, which is annually the big feature of the county fair in Iron County and at which the competition among sheep breeders is exceedingly keen. The county agent in this county cooperates actively with breeders in selecting and improving the management of the breeding stock.

Market Wool in State Pool.

In a number of States county agents have urged successfully an increase in the number of farm flocks kept. Johnson County, Nebr., where the number of farmers keeping sheep was more than doubled in 1920, is a notable example. Although the condition of the wool market was discouraging, one group of 16 farmers in this county shipped a total of 5,000 pounds of wool to the State wool pool. In Jasper County, Mo., a sheep breeders' association was organized through the activity of the county agent to encourage sheep growing, to pool the wool crop, and to fight the wolf menace. This organization took steps to encourage the introduction of purebred stock, and held a cooperative ram sale, at which all the grade rams owned by members of the association were sold and replaced by purebreds.

Boys' and girls' club members have been encouraged to form sheep clubs and grow sheep, with marked success. Local banks have helped to finance these clubs, accepting the notes of club members and letting them run from 2 to 2½ years in order to enable the club members to establish small flocks and sell wool and surplus lambs before settling their indebtedness. Representatives of these banks have shown enough personal interest in the work and have cooperated with extension workers in giving club members encouragement and advice. In Lake County, Minn., the cashier of the local State bank made a personal visit during the year to every boy and girl to whom money had been loaned for the purchase of sheep.

Wisconsin boys and girls have shown unusual adaptability to sheep raising. They have used native sheep in preference to western as being better suited to local conditions. The sheep kept by these members have found a useful place on the farms, since they help to keep down brush and use advantageously fields and cut-over land which would otherwise be unprofitable. In Burnett County the members of the sheep club had unusual success, getting 100 per cent of lambs of fine quality during the season.

Boys Raise Orphan Lambs.

Orphan lambs in Carbon County, Utah, were taken care of last year by boys and girls who could not afford to start flocks by purchasing sheep. Those who could get milk or dried milk were given the lambs, and 19 boys and girls, altogether, took charge of 158 lambs. Only 9 of these were lost during the entire season. Cows' milk was found to be the most satisfactory food, but dried milk was very convenient for use on grazing fields. One boy kept 15 lambs at his home, all of which did well. The same problem was met in a different fashion at Padillas, Bernalillo County, N. Mex., where five club members secured from two to five orphan lambs each and raised them with a goat for a mother.

The outlook for an increase in the number of farm flocks generally throughout the United States is promising. Adult farmers and farm boys and girls are finding the breeding of purebred sheep a profitable line of production, fitting in well with farm activities already established. Extension workers generally should feel encouraged in advocating the adding of flocks of sheep to live stock on farms where conditions are reasonably favorable to wool and mutton production.

EUROPEAN CORN BORER QUARANTINE EXTENDED

Decision to continue its fight against the European corn borer in this country along the lines now pursued has been announced by the Federal Horticultural Board of the United States Department of Agriculture. A revision of the present quarantine, effective November 15, includes the new territory, chiefly along the southern shore of Lake Erie, now known to be infested by the pest, as well as such adjacent areas as is necessary to afford a reasonable zone of safety and to meet the needs of local markets.

Under the new quarantine notice the quarantine has been further modified as to the western areas, where the insect is one-brooded, by the limitation of the restricted products to corn and related plants. The quarantine as revised covers the areas of infestation in Massachusetts and New Hampshire, in eastern and western New York, in Erie County, Pa., and the Lake strip in northern Ohio, together with three townships bordering Lake Erie in Monroe County, Mich. The revision embodies the unanimous recommendations of the States represented at the public hearing held by the board on October 11.

The quarantine as it goes into effect November 15 will involve a continuation of the control measures substantially on the present basis both as to the nature of the restrictions enforced and as to the cost to the Federal Government. It is believed that the control can be ex-

tended to the added territory without increase in the current appropriation for the work, which is $275,000. This is on the basis of State cooperation and aid, assurances of which have been given by most of the States concerned. At the hearing in October representatives of most of the States gave assurances that Government money spent in their States would be matched by an equal amount of State funds for the control work.

The quarantined area has been extended in New York to cover several other towns. In Michigan and Ohio the area includes the following towns:

Michigan: Erie, La Salle, and Monroe, in Monroe County.

Ohio: Ashtabula, Conneaut, Geneva, Kingsville, Monroe, and Saybrook, in Ashtabula County; Cleveland, Dover, Euclid, Rockport, and West Park, in Cuyahoga County; Berlin, Huron, Keileys Island, Portland, and Vermillion, in Erie County; Concord, Madison, Mentor, Painesville, Perry, and Willoughby, in Lake County; Avon, Avon Lake, Black River, Brownhelm, Elyria, and Sheffield, in Lorain County; Jerusalem, Oregon, Toledo, and Washington, in Lucas County; Bay, Benton, Carroll, Catawba Island, Danbury, Erie, Middle Bass Island, North Bass Island, Portage, and South Bass Island, in Ottawa County.

In Pennsylvania these towns are covered by the quarantine:

Pennsylvania: Fairview, Girard, Greene, Greenfield, Harbor Creek, McKean, Mill Creek, North East, Presque Isle, Peninsula, Springfield, Summit, and Venango, in Erie County.

TENTATIVE REGULATIONS TO CARRY OUT PACKER ACT

(*Continued from page 1.*)

owner or registrant or by other stockyard owners or registrants or from an authorized governmental or other reliable source, shall be construed as making such a false or misleading report or representation."

Other clauses in the regulations provide for prompt reports to owners or consignors of live-stock sales; for the use of proper feed for live stock and for keeping accurate weights of such feed; for nondiscrimination in the allotment of facilities or space for handling live stock; for care with respect to yarding, feeding, watering, weighing, or otherwise handling live stock and for the full rendition of all stockyard services with respect to live stock consigned to or handled by market agencies.

Each market agency is required to report to the owner or consignor of live stock within 24 hours the kind and number of animals sold, the price received therefor, the name and address of the purchaser and other information, and no stockyard owner or registrant, the rules provide, shall report the sale of any live stock not actually sold to a bona fide purchaser.

Copies of the regulations in full have been distributed from Washington, and anyone interested can obtain a copy before the hearings, so that their requirements may be examined in detail.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended November 2, 1921:

The Fowl Tick and How Premises May Be Freed from It. By F. C. Bishopp, Entomologist, Investigations of Insects Affecting the Health of Animals. Pp. 16, figs. 9. Contribution from the Bureau of Entomology. Revised. (*Farmers' Bulletin 1070.*)

Operating a Home Heating Plant. By A. M. Daniels, Assistant Mechanical Engineer, Division of Agricultural Engineering. Pp. 28, figs. 8. Contribution from the Bureau of Public Roads. Revised. (*Farmers' Bulletin 1194.*)

Measuring and Marketing Farm Timber. By Wilbur R. Mattoon and William B. Barrows, Forest Examiners. Pp. 62, figs. 20. Contribution from the Forest Service. (*Farmers' Bulletin 1210.*)

Standard Varieties of Chickens. IV. The Ornamental Breeds and Varieties. By Rob R. Slocum, of the Animal Husbandry Division. Pp. 28, figs. 25. Contribution from the Bureau of Animal Industry. (*Farmers' Bulletin 1221.*)

Seed Marketing Hints for the Farmer. By George C. Edler, Specialist in Marketing Seeds. Pp. 31, figs. 14. Contribution from the Bureau of Markets. (*Farmers' Bulletin 1232.*)

Control of the Argentine Ant in California Citrus Orchards. By R. S. Woglum, Entomologist, and A. D. Borden, Scientific Assistant, Fruit Insect Investigations. Pp. 43, figs. 21. Contribution from the Bureau of Entomology. Price, 10 cents.

Journal of Agricultural Research. (For sale only.) Vol. 22, No. 3. October 15, 1921. Contents: Influence of the Plane Nutrition on the Maintenance Requirement of Cattle. (Mo.-5.) By F. B. Mumford, A. G. Hogau, and W. D. Salmon.—Turnip Mosaic. (Ind.-11.) By Max W. Gardner and James B. Hendrick.—Hydrocyanic Acid in Sudan Grass. (Kans.-27.) By C. O. Swanson.—Nutrient Requirements of Growing Chicks: Nutritive Deficiencies of Corn. (Nebr.-4.) By F. E. Musschl, J. W. Calvin, D. L. Halberslebeu, and R. M. Sandsuedt.—Accial Stage of the Orange Leafrust of Wheat. Puccinia Triticina Eriks. (G-247.) By H. S. Jackson and E. B. Mains.—A transmissible Mosaic Disease of Chinese Cabbage, Mustard, and Turnip. (G-248.) By E. S. Shultz. Pp. 115-178, pls. 4, figs. 11. Price, 15 cents. Vol. 22, No. 5. October 29, 1921. Contents: Relation of Soil Temperature and Other Factors to Onion Smut Infection. (G-250.) By J. C. Walker and L. R. Jones.—A Physiological Study of Grapefruit Ripening and Storage. (G-251.) By Lon A. Hawkins.—Absorption of Copper from the Soil by Potato Plants. (E-17.) By F. C. Cook. Pp. 235-287, pls. 2. Price, 15 cents.

Experiment Station Record. Vol. 45, No. 4. September, 1921. E. W. Allen, Ph. D., Editor. Pp. 301-400. Price, 10 cents.

Soil Survey of Chariton County, Missouri. By W. I. Watkins and C. E. Deardorff, of the U. S. Department of Agriculture, and H. H. Krusekopf and W. De Young of the University of Missouri. Pp. 34, fig. 1, map. (*From F. O. Soils, 1918.*) Price, 15 cents.

Soil Survey of Freestone County, Texas. By H. W. Hawker and F. A. Hayes and J. F. Stroud and Neal Gearreald, of the Texas Agricultural Experiment Station. Pp. 58, fig. 1, map. (*From F. O. Soils, 1918.*) Price, 25 cents.

Uses of the Soil Survey. By Charles H. Seaton, Bureau of Soils. (*Separate 854, Yearbook 1920.*) Price, 5 cents.

Service and Regulatory Announcement. No. 37, Insecticide and Fungicide Board. Notices of Judgments 676-700. Pp. 867-887. Price, 5 cents.

Monthly Weather Review. Vol. 49, No. 8. August, 1921. Pp. 435-479. Figs. 26, charts 11. Price, 15 cents a copy, $1.50 a year. Payable to the Superintendent of Documents, direct.

Special articles: Excessive Precipitation in Arkansas. By H. S. Cole.—Relation Between Frequency and Intensity of Precipitation. By J. W. Alvord.—Sources of Two Unusual Rainfall Records. By I. E. Houk.—Early Records of Tropical Hurricanes on the Texas Coast in the Vicinity of Galveston. By R. D. Frazier.—Systematic Corrections to the Calama, Chile, solar constant values. By C. G. Abbot.—Supplemental Note on Free-air Temperature at Drexel and Ellendale during the warm summer of 1921. By A. J. Henry.

National Weather and Crop and Snow and Ice Bulletin. Nos. 40, 41, 42, 43, 44, October, 1921, reporting weather and crop conditions throughout the United States. Issued Weekly. Price, 25 cents a year. NOTE.—This bulletin is furnished free of charge to public and educational institutions, libraries, newspapers, cooperative observers, weather correspondents, and to those who will post or display it for the general benefit of the public. To all others the price is 25 cents per year, payable to the Superintendent of Documents, Government Printing Office, Washington, D. C.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your requests definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

FARMERS SAY PICRIC ACID DOES VERY EFFICIENT WORK

Many favorable reports are being received by the Bureau of Public Roads of the United States Department of Agriculture from farmers using the picric acid which was received from the War Department as surplus war material and distributed by the department for land-clearing purposes, the only charge being the actual cost of drying, packing, and freight. The following are a few of the comments:

"It is the best stuff on pine stumps that I have seen"; "A boon to farmers of limited means who are struggling to clear up land."

There still remain 676,000 pounds of picric acid at Sparta, Wis., and 8,500,000 pounds at Fort Wingate, N. Mex., to be distributed. Where possible, distribution is made through some cooperating agency in each State. Shipments are made in carload lots to groups of farmers.

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Weekly News Letter

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NATIONAL AGRICULTURAL PROGRAM IS NECESSARY

Assistant Secretary Pugsley Presents New Plan for Reorganization of the Extension Office.

Farm Family Will be Considered as the Unit and Extension Work for Men, for Women, and for Boys and Girls Will be Combined.

A new plan for the reorganization of the extension office of the United States Department of Agriculture was explained by C. W. Pugsley, Assistant Secretary of Agriculture, in an address before the annual convention of the Association of Land-Grant Colleges at New Orleans, November 10. The plan is a departure from the organization heretofore existing. The extension offices of the North and South were combined on October 1 by order of the Secretary of Agriculture, but the details were not announced until they were gone over and agreed to by the Association of Land-Grant Colleges. The new plan will permit the development of an extension program with the farm family as the unit. The old organization in the North had three administrative divisions of extension work—one for men, another for women, and a third for boys and girls. In the southern division two administrative lines were followed—one for men and boys and another for women and girls.

Must Have a Goal in Sight.

"The new organization permits extension workers to focus their attention much more effectively upon an agricultural program," said Mr. Pugsley. "It is necessary to have a goal in sight when we are engaged in an important piece of work if we expect to get the best results. So far as extension work is concerned, that goal should be a carefully worked-out program of rural progress. It should cover all phases of rural life.

"The logical way to work out such a program in a county is to have meetings of farm bureaus or other organizations composed of both men and women for the discussion of needs of all phases of rural life. A balanced extension program will be the result.

"The responsibility for making a balanced county program does not end with the county meeting, however. The State has a responsibility. Its legislature has appropriated money and placed officers in charge of its expenditures. Many States have written into their laws the purposes for which the appropriations can or can not be used. It is the duty of the State officers to go over the projects of work from the standpoint of a State agricultural program. Some of these days each college of agriculture will have in its employ some individual who will give special attention to working out a unified program of agricultural progress for the State, and who will assist the counties in making their programs a part of the harmonious whole.

Must Maintain a Balanced Agriculture.

"In a society organized as ours, the final responsibility for an agricultural program can not rest with each State. The Federal Government has a responsibility in the matter. This is recognized by the appropriation of Smith-Lever and other extension funds, amounting now to about $6,750,000. The Department of Agriculture is the national agency charged with the supervision of this vast and constantly increasing fund. It has the same responsibility toward the State that the State has toward the county.

"It should furnish the best information available on world conditions and should outline in a broad and general way a national agricultural program. It should look over the projects with the national program in mind, just as the State looks them over with the State programs in mind. Otherwise it will be very easy to develop an unbalanced agriculture, from which the entire Nation will suffer. We have some evidence to-

(Continued on page 8.)

BRING BACK THE FOREST.

There's plenty of timberlands. Grow timber for home needs and industries.

PRACTICES IN MARKETING HAY THROUGH TERMINAL MARKETS

Efforts Needed to Allay Suspicions of Buyers and Producers Which too Frequently Exist.

Country Shippers Advised to Use More Care in Grading, Weighing, and Loading—Grading Should not be Influenced by Price or Condition of the Market.

Hay is marketed too often under conditions and practices that tend to make the producer somewhat suspicious of the buyer and the buyer suspicious of the producer. Such practices should be eliminated altogether, in the opinion of the Bureau of Markets and Crop Estimates, United States Department of Agriculture, and in a new bulletin, No. 979, Marketing Hay Through Terminal Markets, Federal officials make suggestions as to how that may be brought about. Copies of the bulletin may be obtained upon application to the department at Washington.

Loose Methods of Business.

"While a good many unfair methods," says the bulletin, "are at present practiced by those concerned in the marketing of hay it appears that most of them are related to loose methods of business on the part of various agencies engaged in the handling of hay. On the basis of careful observations made throughout the hay producing and consuming sections, and at the principal markets, it is thought that some improvement in the methods of marketing hay can be obtained by observing the following suggestions:

"On the part of the country shipper: More care in grading, weighing, and loading the hay; better forms for use in confirming sales, tabulating and stating weights, and for invoicing hay; and more care and accuracy in stating terms of sale.

"On the part of dealers in terminal markets: The elimination of the practice of allowing the state of the market to influence the fulfillment of contracts with

country shippers; more uniform methods of handling in terminal markets; better weighing methods and more consideration of contents of weight certificates; more uniform grading practices; grading inbound and outbound hay on the same basis when hay is bought and sold on grade designations; and the elimination of the practice of boosting grades on outshipments.

Suggestions to Dealers.

"On the part of dealers in consuming sections: More careful weighing of purchases; elimination of rejections when price decline is the only factor; and better records relative to contents and weight of a car when unloading."

The bulletin goes into the details of methods followed in shipping and disposing of hay at various cities; cites common trade practices and faults; illustrates methods of car loading and of selling, and contains much valuable information relative to the industry.

TESTS DEVELOP VALUE OF STAINED AND TINGED COTTON

Tests to determine the relative spinning values of the various grades of cotton included in the official standards for color for upland tinged and stained cotton have been completed by the Bureau of Markets and Crop Estimates, United States Department of Agriculture, and the results published in Department Bulletin 990.

Low Middling, Good Middling Yellow Tinged, Middling Yellow Tinged, Low Middling Yellow Tinged, Good Middling Yellow Stained, Middling Yellow Stained, Good Middling Blue Stained, and Middling Blue Stained cotton selected throughout the cotton belt were used in the experiments. All the grades were subjected to the same mechanical conditions, which were those used on earlier tests of the official standards for upland white cotton.

From the percentage of visible waste it appears that the waste follows the grade of the cotton. The breaking tests showed that the highest grade did not always give the strongest yarn. It was found, too, Low Middling, Good Middling Yellow Tinged, Good Middling Yellow Stained, and Middling Yellow Stained can be bleached satisfactorily for white yarns. The Middling Yellow Tinged and Low Middling Yellow Tinged when bleached can be used for dyeing both light and dark shades. The Good Middling Blue Stained and Middling Blue Stained can be bleached satisfactorily for dyeing dark shades only.

ALL STATES WILL RECEIVE FEDERAL AID FOR ROADS

Will Provide Work for Quarter Million Men to Build Thousands of Miles of Improved Highways.

States Must Match Federal Appropriation Dollar for Dollar—Secretary of Agriculture Will Administer Act Through Bureau of Public Roads.

Seventy-five million dollars becomes available as Federal aid for road construction in the various States, the money to be spent under the supervision of the Bureau of Public Roads, Department of Agriculture, under the Federal highway act, signed November 9, by the President. In addition, $15,000,000 is appropriated for national forest roads. The $75,000,000 represents the Federal Government's appropriation to the work of building highways in the various States and must be matched, dollar for dollar, by funds from the State treasuries, except in States where more than 5 per cent of the area is unappropriated public land.

Part of Money Now Available.

The $75,000,000 appropriated is for the fiscal year ending June 30, 1922, and $25,000,000 of the sum is available immediately, the balance becoming available on January 1, 1922. Here is how the money will be apportioned among the 48 States:

State.	Allotment.	State.	Allotment.
Alabama	$1,553,420.67	Nebraska	$1,581,189.50
Arizona	1,053,281.44	Nevada	953,436.78
Arkansas	1,254,142.20	N. Hamp	365,625.00
California	2,462,098.53	N. Jersey	942,870.95
Colorado	1,341,175.69	N. Mexico	1,189,823.34
Conn	480,897.78	N. York	3,696,447.97
Delaware	365,625.00	N. C	1,709,333.90
Florida	886,825.69	N. Dak	1,164,714.42
Georgia	1,997,957.58	Ohio	2,823,004.05
Idaho	938,536.68	Oklahoma	1,752,339.44
Illinois	3,246,281.07	Oregon	1,182,663.90
Indiana	1,958,855.41	Penna	3,398,953.97
Iowa	2,102,872.74	R. Island	365,625.00
Kansas	2,102,281.51	S. C	1,051,237.34
Kentucky	1,417,178.68	S. Dak	1,204,060.31
Louisiana	996,989.64	Tennessee	1,647,692.24
Maine	695,160.25	Texas	4,425,172.41
Maryland	640,629.01	Utah	849,417.21
Mass	1,096,176.04	Vermont	365,625.00
Michigan	2,249,532.43	Virginia	1,456,828.47
Minnesota	2,123,597.07	Wash	1,103,709.77
Mississippi	1,294,906.22	W. Va	802,359.77
Missouri	2,448,128.62	Wisconsin	1,894,815.86
Montana	1,546,885.82	Wyoming	934,617.63

Of the appropriation of $15,000,000 for the improvement of national forest roads $5,000,0000 is made available for the fiscal year ending June 30, 1922, and $10,000,000 for the following fiscal year.

The Federal highway act in a general way resembles the Federal-aid act of 1916, but contains several new features. Administration of the act by the Secretary of Agriculture, and under him the Bureau of Public Roads, remains unchanged.

Apportionment of the fund to the States is almost the same as in the previous act, the fund being divided into three parts, 1 part apportioned according to population, 1 according to area, and 1 part according to mileage of rural and star mail routes. A new feature is the stipulation that no State shall receive less than one-half of 1 per cent of the total fund which, in this case, amounts to $365,625. This stipulation will increase the amount received by 4 of the smaller States, i. e., Delaware, New Hampshire, Rhode Island, and Vermont.

Change in Use of State Allotments.

There is considerable change, however, in the manner in which a State may use its allotment. Each State must select a connected road system not exceeding 7 per cent of its road mileage for improvement with Federal aid. This system will be divided into two classes, one of which will be known as interstate highways and the other as intercounty highways. The interstate highways must not exceed three-sevenths of the system selected; on them not more than 60 per cent of the State's allotment can be spent without the joint approval of the Secretary of Agriculture and the State highway department. The intercounty highways, which consist of the remainder of the system selected, will receive the remainder of the State's allotment.

Except in States where more than 5 per cent of the area is unappropriated public land, the amount of Federal aid received on any project must not exceed 50 per cent of the estimated cost. In States where more than 5 per cent of the area is unappropriated public land the 50 per cent allotment is increased by an amount equal to one-half the percentage of unappropriated public land in the State. Before any funds can be paid to a State, the State must appropriate money, under the direct control of the State highway department, to match the Federal allotment, and for the maintenance of Federal-aid highways.

All highways in the interstate system must have a surfaced width of at least 18 feet, unless a narrower width is deemed permissible by the Secretary of Agriculture. In case a Federal-aid highway is not properly maintained by a State, the State will be given 90 days notice by the department; at the end of that time if the highway is not in good condition of maintenance the Secretary of Agriculture will maintain it out of the State's allotment and refuse to approve

any new projects until reimbursement is made by the State.

What the new appropriation will mean to the country can be judged by the use to which the $275,000,000 previously appropriated has been put, according to officials of the United States Department of Agriculture. Practically $200,000,000 of that money has been put to work in projects which are either entirely completed or now under construction. The exact amount was $199,823,427 on October 31. To match this amount the States have appropriated $265,529,090, making a total of $465,352,517.

Mileage Sufficient to Encircle the Earth.

The roads to be paid for by this money, if placed end to end, would encircle the earth and extend from New York to San Francisco on the second lap, the total mileage of the roads under construction and completed being reported by the Bureau of Public Roads as 27,000 miles on October 31. Of this mileage, 9,555 miles is in projects which are entirely completed and the contractors discharged. The balance of 17,445 miles is in projects which are still under construction, but which were 69 per cent complete on October 31. In these projects there is therefore the equivalent of 12,000 miles of completed road, so that the completed road to date totals over 21,000 miles.

The average cost per mile of the roads built with Federal aid has been between $17,000 and $18,000. More than half the money has been spent for roads with the highest types of surface, such as concrete, brick, and bituminous concrete, but a very large mileage of roads of the cheaper type, such as gravel and sand-clay, has been built where such types would withstand the wear of the traffic.

Prior to five years ago the Federal Government took no active part in the road construction of the country. Today about one-half of all the roads that are being built are being aided by the Government financially, and the construction is subject to the inspection and approval of Federal engineers.

Work for Quarter Million Men.

It is estimated by engineers of the United States Department of Agriculture that the Federal-aid roads under construction on October 31 were giving employment to about 250,000 men, either directly on the actual road construction or indirectly in the production and transportation of the materials which enter into the construction.

The new act, just signed, will, it is stated, keep these men at work, so far as weather conditions will permit, and thereby prevent the unemployment situation from becoming more serious. Without the new appropriation many of the States would soon have been forced to curtail their work for lack of funds.

Corn Is Likely to Be Used for Fuel; Cheaper Than Coal in Some Sections

Secretary Wallace, of the Department of Agriculture, said recently:

"Ear corn at 20 cents a bushel is equal in fuel value to a fair grade of western soft coal at approximately $10 a ton. In districts where corn is very cheap now the coal is usually of a rather poor grade and is selling at high prices. Under such conditions it will pay both farmers and people in country towns to use corn instead of coal.

"Because of the variation in quality of both corn and coal it is difficult to make scientific experiments the results of which are applicable everywhere, but, speaking generally, the relative heating values of corn and coal are about as follows:

Compare Heating Values of Corn and Coal.

Corn at 10 cents a bushel equals coal at $5 per ton.
Corn at 11 cents a bushel equals coal at $5.50 per ton.
Corn at 12 cents a bushel equals coal at $6 per ton.
Corn at 13 cents a bushel equals coal at $6.50 per ton.
Corn at 14 cents a bushel equals coal at $7 per ton.
Corn at 15 cents a bushel equals coal at $7.50 per ton.
Corn at 16 cents a bushel equals coal at $8 per ton.
Corn at 17 cents a bushel equals coal at $8.50 per ton.
Corn at 18 cents a bushel equals coal at $9 per ton.
Corn at 19 cents a bushel equals coal at $9.50 per ton.
Corn at 20 cents a bushel equals coal at $10 per ton.
Corn at 21 cents a bushel equals coal at $10.50 per ton.
Corn at 22 cents a bushel equals coal at $11 per ton.
Corn at 23 cents a bushel equals coal at $11.50 per ton.
Corn at 24 cents a bushel equals coal at $12 per ton.
Corn at 25 cents a bushel equals coal at $12.50 per ton.
Corn at 26 cents a bushel equals coal at $13 per ton.
Corn at 27 cents a bushel equals coal at $13.50 per ton.
Corn at 28 cents a bushel equals coal at $14 per ton.
Corn at 29 cents a bushel equals coal at $14.50 per ton.
Corn at 30 cents a bushel equals coal at $15 per ton.
Corn at 31 cents a bushel equals coal at $15.50 per ton.
Corn at 32 cents a bushel equals coal at $16 per ton.

"The drier the corn the higher its fuel value. It can be burned either on the ear or shelled, but better on the ear.

"In times past, when corn was very cheap, it has been burned as fuel in the United States, but mostly on the farms. In Argentina both corn and small grain are sometimes burned as fuel, not alone on the farms but in power plants. Undoubtedly large quantities of corn will be burned on western farms this winter unless the prices should materially advance. The farmer will find the corn cheaper fuel than coal, and in addition will save the cost of hauling the corn to town and hauling the coal back. People in the country towns in the sections of cheap corn will probably find it will pay them to buy ear corn for their furnaces and heating stoves unless coal should decrease considerably in price or corn should advance."

BIG GOVERNMENT EXHIBIT AT LITTLE ROCK FAIR

No pains were spared by the various bureaus of the United States Department of Agriculture in preparing the Government exhibits at the Little Rock, Ark., Fair, November 11 to 19. The exhibits combined a wide range of subjects, each treated in so attractive a manner as to be of interest not only to the man whose daily work it chiefly concerns but the general public as well.

The exhibits were carefully selected with an eye to the features of the department's work of interest to fair goers from Arkansas and surrounding States. Many of the exhibits were in the form of demonstrations with working models, showing the labor or money saving features of various kinds. Nearly all the department's big bureaus—Animal Industry, Public Roads, Forest Service, Farm Management, Plant Industry, Biological Survey, Chemistry, Soils, and Markets and Crop Estimates—were drawn upon for the material shown.

The exhibits occupied between 4,000 and 5,000 square feet of floor space and representatives from the bureaus were on hand to explain them to those interested.

Weekly News Letter

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UNITED STATES DEPARTMENT OF AGRICULTURE
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John L. Cobbs, Jr., Chief

PRESS SERVICE
Dixon Merritt, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

Promp notice of change of address is requested. Both old address and new address should he given.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

FOREIGN FARM FIGURES CHANGED TO U. S. SYSTEM

Prompted by many inquiries for information concerning crop conditions of various countries, the United States Department of Agriculture has prepared a Handbook of Foreign Agricultural Statistics, which is now published as Department Bulletin 987. The bulletin makes available in convenient form those statistics most generally used concerning crops and live stock of foreign countries and of the island possessions of the United States. The sources of the statistics are the Government reports of the various countries. The reports have been computed to the weights and measures of the United States. Anyone interested in this subject may obtain a copy of the bulletin by addressing a request to the United States Department of Agriculture, Washington, D. C.

LAWS AND DECISIONS RELATING TO CATTLE-TICK ERADICATION

To help in finishing the fight against the cattle tick, which it is expected will be concluded within a few years, the United States Department of Agriculture has published Department Circular 184, State Laws and Court Decisions Relating to Cattle-Tick Eradication. The information contained was obtained from official publications of State laws and from court reports. It is believed that familiarity with the tick eradication and related laws will be advantageous to officials intrusted with the enforcement of laws and regulations pertaining to such work, and to the movement of cattle under quarantine for ticks which transmit Texas fever.

Although ticks have already been eradicated from a number of States, the laws and decisions of these States have been included to show the legal authority under which the work was successfully conducted. The States included are Alabama, Arkansas, California, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia.

MATERIAL FOR CONCRETE ROADS AND BEST METHODS OF MIXING

Experiments to determine just what kinds of materials are best for concrete, and in what proportions to mix them so that they will wear well in a road, are being made by engineers of the Bureau of Public Roads, United States Department of Agriculture. An apparatus will be used that consists of heavy steel wheels which, guided by a mechanical arrangement, roll continuously back and forth over the pavement.

More than 40 different sections of concrete pavement, each 10 feet long, will be laid. Materials from many different parts of the country are being shipped to the Government Experimental Farm at Arlington, Va., near Washington. They will be mixed with varying quantities of cement and water to determine which is best. Experience has shown that there is a measurable amount of wear of the surface of a concrete road each year.

NEW PICTURES IN SERIES OF BEST TYPES OF LIVE STOCK

Two pictures, one showing an accredited herd of Holstein-Friesians and the other a small flock of Angora goats inside a rustic stockade, have been added by the United States Department of Agriculture to the series illustrating good types of live stock. With the five pictures previously issued, these make a total of seven now available. They are 11 by 15 inches, printed on heavy paper, and may be obtained free from the department, but they are not distributed in quantities.

The purpose of the pictures is to stimulate interest in better animals as a part of the "Better Sires—Better Stock" campaign. The pictures have already become popular with schools, banks, farm bureau offices, fairs, exhibits, and farm homes. In addition to illustrating animal types they have such artistic value as to be well worth framing.

CROPS AND LIVE STOCK FOR ENGLAND, WALES, AND IRELAND

The Government report for the production and average yield of wheat, barley, and oats for 1921 in England and Wales is given as follows in a cablegram from London to the United States Department of Agriculture. The figures for 1920 are in parenthesis: Wheat, 69,784,000 bushels (53,352,000), yield per acre, 35.3 bushels (28.5); barley, 42,472,000 bushels (50,680,000), yield per acre, 29.6 (31.0); oats, 80,176,000 bushels (85,968,000), yield per acre, 37.3 (37.9).

The preliminary Government report for Ireland's crop and live stock for 1921; figures for 1920 are in parenthesis: Wheat acreage, 43,000 (50,000); oats, 1,254,000 (1,332,000); barley, 175,000 (207,000); rye, 5,000 (6,000); potatoes, 568,000 (584,000); flax, 40,000 (127,000); hay, 2,370,000 (2,518,000). Number of animals on farms in 1921, with 1920 figures in parenthesis: Cattle, 5,197,000 (5,022,000); sheep, 3,708,000 (3,586,000); pigs, 977,000 (982,000); horses, 555,000 (624,000).

POISONOUS MILKWEED CAUSES MANY DEATHS TO RANGE SHEEP

Stock poisoning by weeds on the western ranges is often so insidious that it is difficult to trace the cause of the trouble to its correct source. This is true of the various milkweeds, some of which have poisonous properties, while other suspected varieties have been found to be nonpoisonous.

A recent publication of the United States Department of Agriculture describes one of the most injurious of these weeds, the Mexican whorled milkweed, which is believed to have caused much of the sheep trouble attributed to some other varieties. The plant ranges from Mexico northward through California, western Nevada, and southern Washington to eastern Idaho. It is also known as the narrow leaf milkweed. Feeding tests indicate that the poisonous qualities are most pronounced in the leaves. Only sheep were used in the feeding experiments, but other investigators assert from experience that cattle also are subject to poison.

DEPARTMENT WILL MAKE AN INTERESTING EXHIBIT AT THE INTERNATIONAL LIVE-STOCK EXPOSITION

There Will Be Something to Instruct and Entertain Every Visitor to the Big Show at Chicago, November 26 to December 3, for Most of the Bureaus and Offices of the Department Have Contributed Features of an Educational Nature

TEN BOOTHS AND MANY PANELS FEATURE MEAT PRODUCTION

The great importance of live stock in the national economy and the importance of economical methods of handling and feeding the animal on the farm will be brought out by some of the most striking methods of demonstration yet used at these famous shows. Show visitors are usually in a hurry and have many things to see. The department is going to make it easy for them to select what they want. Ten booths and a number of panels will be devoted to various activities, and occupying a large amount of additional space will be special animal exhibits showing what actually has been done by good and poor methods of feeding beef cattle, and what has been accomplished by the lately devised sanitary system of hog production. The Bureau of Animal Industry, the Forest Service, the Bureau of Public Roads, and the Office of Farm Management and Farm Economics are represented in the display which is under the direction of the department's Office of Exhibits.

If you are interested in better sires and better stock, or in any phase of herd improvement, you can not afford to miss the booth labeled "Better Sires—Better Stock." But this is only one of a long line of show places that will be advertised under such titles as "In and Out of the Forest," "Range Sheep Improvement," "Sheep on the Farm," "The Story of Farm Power," "Power of Meat," "Accredited Beef Cattle Herds," "Animal Welfare and Meat Production," "On Guard Against Foreign Plagues."

In a pen you will find a good type of a feeder steer, next to it piles of various feeds that can be used to put beef on the ribs of such a steer in the most economical fashion, and then comes a finished steer made ready for the market on just such feeds. There is no hocus-pocus in this; the animals and the feeds are right there. In the same way you may see what the department-devised system of hog-farm sanitation has to do with the development of pigs into profitable hogs. The pigs will be there on all four feet. Also his enemy, the round worm—minus the feet. It will be a meat-production show worth the cost of any round-trip ticket to Chicago.

MEAT MAKING IS IMPORTANT BUT MEAT EATING MORE SO

One of the great values of meat-producing animals to the country is as salvagers of materials that would otherwise go to waste. The making of meat is not, as sometimes contended, a waste of food that might be used directly by humans with greater economy. Although animals, especially hogs, eat much corn and other grains that are used in one form or another by humans, they consume them along with large quantities of such coarse feeds as grass, hay, cornstalks, cereal by-products, straw, cottonseed meal, oil meal, fish meal, tankage, and silage. Without our great herds of live stock a considerable share of the plant products grown each year would be wasted, yet on such feeds as most of those mentioned a man would soon starve.

That is one side to the live-stock question that is brought out in an exhibit devoted to meats.

On the other hand, meat will be shown as a food that "sticks to the ribs" and fulfills the demands of the laborer, the brain worker, and the athlete. Attention will be called to the fact that the most powerful nations in the world are what might be termed the meat eaters, and that while America has been rising to her present eminence she has been one of the greatest consumers of beef, pork, and mutton. But to get from meat the essential elements for energy, growth, and repair it is not necessary to eat the most expensive cuts. The value of the cheaper cuts will be demonstrated, and ways will be shown for serving all sorts of meats in all kinds of appetizing forms.

TELL STORY OF COLUMBIAS, THE NEW AMERICAN SHEEP

The Columbia, a new type of sheep developed by the United States Department of Agriculture by crossing the Lincoln and the Rambouillet, is demonstrating its value for mutton and wool production on the ranges of the West. The story of how this new type was developed will be shown graphically.

The work of producing this special type for conditions in the big sheep-growing area has been going forward since 1912. It was started near Laramie, Wyo., and continued there until transferred to the United States Sheep Experiment Station near Dubois, Idaho, in 1917, where the work has been continued on a 28,000-acre tract since that time. A large panoramic picture will show the kind of country in which the breeding has been done, and a few figures will show conclusively to the sheep raiser the possibilities of the Columbias as meat and wool producers.

The average mature ram under range conditions weighs from 200 to 250 pounds, the ewes from 125 to 150 pounds. The fleeces in the 1920 clip averaged 10 pounds, and the actual shrink was only 48 per cent. This wool graded three-eighths and one-fourth blood combing—a very salable wool in normal times. Last spring the number of lambs born alive for every 100 ewes bred was 98—a good percentage under range conditions. At an average age of 3⅔ months the lambs weighed 72 pounds on the range. Lambs of the Down or black-faced breeds raised on farms invariably weigh no more than this at 4½ months.

Sheepmen of the range States have shown a great interest in the Columbia as it seems to promise greater profits to range mutton and wool growers.

SAVE WORK IN PORK MAKING BY USING MODERN EQUIPMENT

Those who are not acquainted with the methods now in use on modern farms are inclined to think of the hog as an exponent of the simple life, but if they were to see all the equipment that a good hog farm uses for the convenience of the hog grower and for the comfort of the porkers they would conclude that making pork is much more than merely bringing corn and hog together.

In the model paddock which will be a part of the exhibit, a sow and her litter will enjoy all of the conveniences that have proved practical. The hog family will live in a full-size colony house. A

flat-bottomed trough will dispense feed to the sow, but the pigs will have a "creep" with platform and self-feeder of their very own. The water supply will come from an automatic barrel-waterer. They will bathe in a concrete wallow, and if the building is too strongly illuminated they may find protection under a shade like those used in pastures to shield them from the heat of the summer's sun.

In addition to these everyday conveniences, there will be a breeding crate, loading chute, shipping crate, and several styles of hurdles all necessary on the hog farm. The paddock will be fenced with woven wire, and will be entered through a gate provided with proper bracing and fixtures for strength and convenience. All equipment used in this model pig paddock is of the kind that can be made by farmers from materials that are usually at hand or that may be easily obtained. The big idea is to cut down work while at the same time making pork production a profitable enterprise.

NEW METHOD CONTROLS WORMS IN PIGS THROUGH SANITATION

What makes the difference between thrifty pigs and unthrifty ones? Naturally, there are many causes, including breeding, feeding, and shelter, but a principal one and one that may easily be overcome is worms—the common intestinal round worms. These parasites are often largely responsible for the high death rate among young pigs, and many cases of so-called thumps are the result of worm infection. The average farmer, possibly, would give a great deal to be able to stop this loss.

But a new and effective method of worm eradication, devised by the United States Department of Agriculture and used with success by members of the McLean County (Ill.) Farm Bureau, is available to any farmer who is willing to go to a little trouble, or who will visit the exposition. There will be shown for comparison a pen of wormy pigs and a pen of pigs raised free from worms; the worms themselves, alive and wriggling, will also be on exhibition. In one pen will be a litter of six pigs that gained during a certain period, because of the parasites, only 171 pounds; in a neighboring pen will be another six-pig litter kept on the same feed as the wormy litter but raised without worms that gained 322 pounds in the same length of time.

This system of swine sanitation to eradicate worms is simplicity itself. First it is necessary to clean the farrowing pens with hot water and lye. Then wash the dirt from the skins of the sows before farrowing and put them in the clean pens. Within two weeks after farrowing remove the sows and pigs to a clean pasture, and keep the young pigs on clean pasture for at least four months. In order to produce strong, healthy, profitable pigs it is, of course, necessary that they have good feed, water, and shelter in addition to worm-free surroundings.

Cotton Trading Corporation Organized at Danzig Interests American Shippers

The organization of a cotton-trading corporation at the free port of Danzig designed primarily for handling American cotton consigned for sale to European spinners is indicated in an announcement received by the United States Department of Agriculture. According to a letter received from officers of the new concern, a fireproof building of 1,196 square yards in area has been leased in the free port, and the men behind the project are very anxious to make connections with American exporters of cotton.

Port Offers Excellent Facilities.

The formation of the corporation, which is known as the American Cotton Trading Corporation (Ltd.), was the outgrowth of the recent visit of W. L. Pryor, of the United States Department of Agriculture, to Danzig to secure first-hand information concerning European markets for American cotton. W. R. Meadows, of the Bureau of Markets and Crop Estimates, met the gentlemen primarily interested at Warsaw and Lodz and discussed with them the question of the utilization of Danzig as a cotton port.

It was found that Polish spinners desire to buy their cotton in Danzig, paying cash for it at the time of delivery. At present the Polish spinners are consuming around 20,000 bales of cotton a month, but consumption is gradually increasing. In view of this, it is thought, the shipment of American cotton to Danzig on consignment should present some attractive features to American exporters. The Polish mills formerly used Russian-grown cotton largely, but from the best information obtainable by the two representatives of the department, it is doubtful whether 50,000 bales of cotton were grown in Russia last year. They believe that Russia can not be considered as a producer of cotton for 10 years at least. Polish mills that formerly used Russian cotton now must turn to America for their supplies.

Plenty of Customers in Sight.

The Czecho-Slovakian spinners also will require raw materials, and might buy cotton at Danzig as soon as raw cotton can be made available at that port for prompt shipment. Most of the purchases have been transacted through the Bremen and Hamburg markets. It is said, however, that some of these importers are desirous of establishing trade connections through Danzig.

Danzig has no cotton mills of its own. Most of the cotton goods required by Danzig are manufactured in England, Saxony, or Poland. It is said that a factory for cotton goods at Danzig is under consideration on account of the hoped-for market in Russia and the possibility of Danzig as a cotton-importing port.

VALUE OF USING GOOD SIRES GRAPHICALLY DEMONSTRATED

To show what may be accomplished in a relatively short time in the improvement of cattle through the use of good sires and careful mating with females of good type, there will be a graphic presentation of what the "Better Sires-Better Stock" campaign has accomplished in inducing farmers to do away with scrub and grade sires and use purebreds of good type instead. Every raiser of live stock from poultry to cattle is eligible to receive a certificate in this campaign. The men who have been conducting this movement will be there to explain the plan to those interested.

TO SHOW SHEEP RAISING ON ANNUAL FORAGE CROPS

In the United States sheep raising is and has been largely a business conducted on the large ranges of the West or on farms in the East and Middle West that contain considerable permanent pasture. It has been extensive rather than intensive, but men who have been investigating sheep-growing problems for the United States Department of Agriculture believe that the time has come when farmers in many localities, where grass does not grow in abundance or where for some other reason land must be handled more intensively, can use temporary forage to advantage in

raising sheep. This problem of producing sheep on annual crops will be given considerable attention by the department in a special sheep exhibit at the hay and grain show to be held with the International Live Stock Exposition at Chicago, November 26 to December 3.

A great variety of forage crops have been used in tests, and it is now possible to make comparisons so that farmers in different localities may pick out the crop or crops that should give the best results. The crops that have been used are rape, soy beans, oats and peas, wheat, cowpeas, alfalfa, barley, and rye. This system, aside from putting on gains at a profit and enabling farmers to produce more mutton and wool on a limited acreage, lessens the danger of loss from diseases and parasites.

PINK BOLLWORM QUARANTINE REMOVED FROM GALVESTON

An amendment to the pink bollworm quarantine notice, removing the island of Galveston from inclusion in the area designated as infested with the cotton pest, effective November 1, has been announced by the Federal Horticultural Board of the United States Department of Agriculture. In effect this action allows Galveston to make interstate shipments of cotton from outside the quarantined area without the formality of a permit.

While no cotton is grown on the island, the port of Galveston is an important shipping point for cotton. Practically all the cotton entering Galveston is for foreign export, and for this reason there has been little or no objection to the inclusion of the town and island in the infested area which includes Galveston County, Tex. It developed, however, that it might be advisable to ship out of Galveston cotton that has come from a part of the State not under quarantine restriction. It was thought desirable, therefore, to provide means for the movement interstate of cotton from outside the quarantined area without restrictions, as is now the case with Houston.

All quarantined cotton entering Galveston will be covered by permits authorizing exportation only. This cotton will be accounted for from the time it is ginned until it is marked and tagged and placed on shipboard. Prior to the amendment of this regulation, unquarantined cotton entering Galveston could be shipped interstate only under permit from the Federal Horticultural Board. The amendment remedies this situation without in any way weakening the protective measures now being enforced relative to cotton originating in infested areas.

General Enlargement Needed of New Southern Forest Experiment Station

Forests of the South, from which is passing the leadership in the naval-stores industry and whose mammoth production of yellow pine and other splendid timbers is lessening yearly, need action on the part of the Federal Government to bring back their old-time supremacy and build them up as reservoirs of timber for American homes and industry. So says the Forest Service, United States Department of Agriculture, in a report recommending the general enlargement of the new Southern Forest Experiment Station. This station is one of an ultimate series of 10 to cover the needs of the entire country.

Why the southern pine belt needs such a station is set forth in detail as follows:

Many Reasons for Establishing a Station.

"The original southern pine forests occupied 125,000,000 to 130,000,000 acres.

"The present area of virgin timber is only 23,500,000 acres.

"The present area of waste forest lands is 30,000,000 acres.

"Four-fifths of the original 650,000,000,000 feet have been cut since 1870, chiefly since 1890.

THERE'S PLENTY OF TIMBERLANDS.

Make them work and there'll be plenty of timber. Bring back the forest.

"The normal pine cut has been 15,000,000,000 out of a total of 40,000,000,000 feet for the United States, but the crest of production has already been passed.

"Other sections of the United States are even more interested than the South in continued production, since two-thirds or more of the total cut for the past 20 years has been the main source of supply to the great eastern and middle western markets.

"By 1930 increased local demands promise to take all of the decreased cut, leaving the rest of the country dependent upon the Pacific coast.

"The Florida citrus industry, which consumes 13,000,000 boxes annually and is planning to treble its output in 10 years, is apprehensive as to the future and is considering California as a source of wood supplies.

"The naval-stores industry of the United States, whose production is still 80 per cent of that of the entire world, in spite of a decrease of 50 per cent or more during the past 20 years, will within 10 years supply no more than American requirements.

"World leadership in naval-stores production is passing to the artificially established maritime forests of France.

"Less investigative work has been done in the South than in any other important timber region. That done, as in most eastern regions, has been general in character, and the time has come when little more can be accomplished except by the intensive investigations possible at a forest experiment station.

"An adequately manned and equipped forest experiment station is needed in the southern pine belt to show how to bring back into production 30,000,000 acres of waste forest land and how to increase production on 60,000,000 acres additional which, for the most part, is at present growing much less than it should.

"A station is needed to develop methods of cutting which will keep 23,500,000 acres of virgin pine stand fully productive.

Fire Protection Needed for Young Trees.

"In addition to the solution of the problem of artificial reforestation and the developments of methods of cutting which will insure natural reproduction, it must develop effective methods for the care and protection of young stands from fire. Methods must be worked out which will permit grazing in connection with timber growing.

"Better practices in turpentining must be developed to permit maximum yields of naval stores with the minimum of damage to growing stands. Data on the growth and yields of different species under different conditions will be needed by all forest owners. The work of the station should be, in short, to cover all the problems involved in the management of the forests from the seedling to the mature stand. Similar work is also necessary in the cypress and hardwood forests of the Gulf States."

The 10 forest experiment stations proposed, of which that for the southern pine belt is one, would ultimately require each a technical staff of from 6 to 12 men, the report states, and the work for the forest area of the United States would cost an average of about one-tenth of a cent an acre for forest investigations. The entire program is set forth in detail in the report, Forest Experi-

ment Stations, Circular No. 183, United States Department of Agriculture, copies of which may be obtained, free of charge, upon application to the department at Washington.

NATIONAL AGRICULTURAL PROGRAM IS NECESSARY

(*Continued from page 1.*)

day that a Nation does suffer from an unbalanced agricultural program.

"In short, the responsibility of the National Government is to see that the Federal funds are properly spent and are accomplishing the purposes for which they were intended, rather than to dictate the details of the method of expenditure.

More Home Economics Work.

"A unified extension program means more extension work among the women and girls. The plan of work which has been in vogue in most of the States has worked to the disadvantage of extension activities in home problems. When the work is divided along the lines of sex and age, as it has been during the past, that work which is most likely to increase the farmers' income will receive the most attention. The home and social features of a program of rural progress are sure to be at a disadvantage under such a plan.

"In most States there are now county agricultural agents dealing with production problems; there are home-demonstration agents dealing with home economics problems; there are boys' and girls' club agents dealing with junior problems. Each of these lines of work is in charge of a State leader at the college of agriculture. Each has also been in charge of a separate administrative division at the Washington office. This has made a line of cleavage from one end to the other, in spite of the efforts of extension directors and division chiefs to harmonize. The inevitable result has been an unbalanced program.

"If a unified extension program can be developed, however, this difficulty can be overcome. Production and marketing of crops are only two steps in the program of rural progress. If that is the only object we have in mind in extension work, we are not worthy of a place in the great extension organization. It is as important to see that the money which is made by an economical program of production and marketing is properly spent as it is to make the money in the first place. If we do not carry our program far enough to aid farm families to secure better homes and better social life in our rural communities, we have, indeed, fallen far short of the possibilities confronting us.

Plan Program for Entire Family.

"We all need to keep constantly in our minds a program which is planned for the entire family. Then we all need to work for the accomplishment of that program, each in his own niche, to be sure, but each with a vision of the whole. Then if there chances to be but one agent in a county, be that man or woman, the program can be carried on harmoniously. This is made increasingly possible by the recent and important development of subject-matter extension specialists for use in all counties as the work demands."

STUDY EFFECT OF VIBRATION ON MOISTURE UNDER CONCRETE

Does vibration caused by the movement of a vehicle over a road increase the amount of moisture in the earth under the road, and thus weaken its bearing power? This question will be answered when results are secured from an experiment just started by the Bureau of Public Roads, United States Department of Agriculture. Two similar concrete slabs have been constructed side by side, and on one there will be placed a gasoline engine with an unbalanced flywheel which will cause vibration. Soil samples will be taken from under the slabs and the amounts of moisture compared. This experiment is undertaken, not with the idea that road vibration can be prevented, but to determine whether sufficient increase in the moisture of the subgrade is caused by it to weaken the bearing power of the soil, and incidentally, to develop new ways of testing methods of subgrade treatment.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended November 9, 1921:

Farm Dairy Houses. By Ernest Kelly and K. E. Parks, Dairy Division. Pp. 15, figs. 9. Contribution from the Bureau of Animal Industry. (Farmers' Bulletin 1214.)

Tomatoes for Canning and Manufacturing. By James H. Beattie, Horticulturist, Office of Horticultural and Pomological Investigations. Pp. 20, figs. 7. Contribution from the Bureau of Plant Industry. (Farmers' Bulletin 1233.) Intended for distribution mainly among commercial growers and canners of tomatoes.

Handbook of Foreign Agricultural Statistics. Compiled under the direction of Frank Andrews, Chief, Division of Crop Records. Pp. 69. Contribution from the Bureau of Markets and Crop Estimates. (Department Bulletin 987.) Price, 10 cents.

Walnut Husk-Maggot. By Fred E. Brooks, Entomologist, Fruit Insect Investigations. Pp. 8, pls. 4. Contribution from the Bureau of Entomology. (Department Bulletin 992.) Price, 5 cents.

Experiment Station Record. Vol. 43. Index Number. Pp. 24, 901–1005. Price, 10 cents.

A Biological Survey of Alabama. I. Physiography and Life Zones. II. The Mammals. By Arthur H. Howell, Assistant Biologist, Biological Survey. Pp. 88, pls. 11, figs. 10 (North American Fauna No. 45). Price, 25 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

CONTROL OF CODLING MOTH IN GRAND VALLEY OF COLORADO

Based upon spraying experiments conducted in several orchards during the seasons of 1915, 1916, 1917, and 1918, on representative apple varieties, the United States Department of Agriculture has issued Department Bulletin 959, a professional paper entitled Experiments and Suggestions for the Control of the Codling Moth in the Grand Valley of Colorado, by E. H. Siegler and H. K. Plank. The publication gives summaries of the various spraying work in each of the orchards.

Spraying schedules for three applications are also given. Best results, it was found, were obtained from arsenate of lead at the rate of 1 pound of the powder or 2 pounds of the paste to 50 gallons of water. The matter of spraying equipment, together with supplemental control measures, is also discussed in the bulletin.

EXHIBIT OF U. S. WOOL GRADES AND MANUFACTURING PROCESSES

For use in connection with their educational work, a number of high schools and vocational training schools have requested the United States Department of Agriculture to furnish them with exhibits showing the United States tentative grades for wool, and illustrating the process of manufacture of the raw wool into finished cloth. A sample exhibit has been prepared and the practicability of making up a number of these small exhibits for distribution to schools is now under consideration.

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Weekly News Letter

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LIMITS ON REGISTRATION OF FARM NAME AS TRADE-MARK

May Be Made a Real Asset to the Owner Corresponding to Good Will in Other Business Lines.

Name Must Be Used as a Trade-Mark on Farm Products Moving in Interstate Commerce Before It Can Be Registered in Patent Office.

Many farmers throughout the country are finding it to their advantage commercially to give their farms attractive names that can be used in connection with marketing their products. Provided the quality of the product is kept up, a reputation is quickly established for the farm and the commodity that makes the name of real worth in dollars and cents when it comes in competition on the market with other products. The name becomes in time a real asset to the owner and has a money value much like the good-will in other kinds of business.

Cattle Breeders Recognize Value of Name.

In England, many farms have borne distinctive names for years, which have become famous in connection with various products. This has been especially true in the case of certain breeders of cattle. The name of the farm passes current among cattle breeders as a sort of guaranty that animals from that farm are all that is claimed for them. The practice is coming into vogue in this country, and with it a desire to be protected against others adopting the same name and thereby benefiting by the reputation already established for it.

The United States Government, through its Patent Office, which interprets the trade-mark and label copyright laws, is prepared to give this protection within certain limits. Some of the States have laws authorizing the registration of farm names with the State authorities, and no one else in that State is allowed to use the name. This is merely for use within that particular State. The United States Patent Office, however, is prepared to register farm names as trade-marks if they meet specified requirements. This will protect the owner against their use by others anywhere in the United States. There are certain requirements, however, that must be met, as in the case of other sorts of names used as trade-marks under the Federal trade-mark law. The farm name, for one thing, must be used by the farmer as a trade-mark on his products that he ships to points outside his own State; in other words, a commodity that moves in interstate commerce. It must be printed, stamped, or otherwise attached to each parcel. The Federal law makes no provision for the registering of names used as trade-marks on commodities that are shipped only within the State.

Recognize Common-Law Right in Name.

Although it is thought advisable, it is not necessary that the name be arranged into any distinctive design. Under the

(Continued on page 6.)

SERUM MERELY PREVENTS LOSSES; DOES NOT ELIMINATE CHOLERA.

Some persons think that the use of anti-hog-cholera serum has become so general that we are far on the way toward the elimination of the disease, but, according to the United States Department of Agriculture, a clean-up of cholera can not be expected through the use of this method. Besides, only a small percentage of the hogs in the country are treated each year and there is also almost a complete turnover of the swine population each year. Every 12 months we start with a new lot of pigs and the fight against disease must start at the beginning again.

About 500,000,000 cubic centimeters of serum are used every year, which means that, counting 50 cubic centimeters for each hog, only about 10,000,000 hogs are treated. In recent years there have been around 70,000,000 hogs in the country on January 1, according to Federal crop estimators, which means many more hogs in the spring and summer. If all these hogs were treated cholera would not be eliminated. It would simply be made impotent to kill many hogs for one season and would begin to kill again the next season if serum were not used. Serum treatment, like insurance, can not be allowed to lapse.

JAPANESE CHRYSANTHEMUMS CONSPICUOUS AT SHOW

Nearly 60,000 Visit Twentieth Annual 'Mum Show Made by Department of Agriculture at Washington.

Marked Progress in the Production and Growing of Seedlings for Greenhouse and Outdoor Culture—A Popular Late-Blooming Flower for the Hardy Garden.

A number of promising and unusual chrysanthemum seedlings were exhibited for the first time at the Twentieth Annual Chrysanthemum Show held by the United States Department of Agriculture, November 2 to 11, in the department greenhouses. Several of those with large blooms grown with one flower on a tall stalk were named by Mrs. Wallace during the show. "Mrs. Harding" was a deep lavender bloom, while "Secretary Wallace" was bronze, red, and yellow. "Mrs. Henry C. Wallace" was named by the Secretary from this year's seedlings, a conspicuous dark lavender with purple-backed petals. "Titian Tints" was an exquisite small bush or pompon type named by Mrs. Wallace, and "Josephine Wallace" was a bronze yellow pompon of delicate formation.

Characteristics of Japanese Varieties.

Outstanding among the 50 or more varieties of Japanese chrysanthemums which were grown from very small plants imported last February, was "Skikishima," a large flattish head of pale lavender on a well-developed bush. Although the Japanese prefer to grow their chrysanthemums to get the effect of the entire bush, this plant especially seems to offer possibilities for development in the American single-stalk fashion.

Many of the Japanese flowers, with their characteristic quill-like petals, sprawly heads, and loose arrangement on the bush, are yellow in tone, though two colors are usual. "Kaka-no-sui" has magenta petals with a pinkish-white reverse side. "Kabatama" is reddish yellow. "Matsu-no-tsuru" shades from

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pale pink to yellow white. "Hatsuhinode" has large loose yellow petals.

The Chinese seedlings shown in considerable number were white, white and lavender, white and pale yellow, yellow, and delicately pink. Most of them had flat petals curling toward a distinctly defined center; some were of the daisy type, both white and lavender-pink, with yellow centers. They were easily distinguishable from the Japenese plants. These Chinese seedlings were all grown from seeds bought in January, 1921. Of interest in connection with the exhibit of Chinese seedlings is a request from the University of Nanking for the exchange of some domestic chrysanthemum plants with China. After the department has selected the stock it desires to use for another year, including certain plants which will be tested out-of-doors at the Arlington Experimental Farm, near Washington, suitable and representative stock will be sent to China.

Hardy Types to Be Tested Out of Doors.

The chrysanthemums exhibited by the department are, of course, raised in greenhouses. The future of the interesting Japanese varieties can not be foretold. In developing plants for hardiness it will be neeessary to select the earlier blooming varieties which will mature before the short northern summer is over. Garden chrysanthemums have long been popular and suitable for home growing in the latitude of Washington, D. C., and further south, but there are very few varieties that will resist the dry cold of the northeastern and middle-western States. Out of 11,000 plants that have been tested within the past 5 years only about 65 varieties still offer possibilities as sufficiently early and hardy. These are chiefly of the smaller garden type of bush or pompon chrysanthemums.

Among the tall single-stalk plants which attracted attention at the show there were 2 varieties named for General Pershing, one of which was English; and "Vermont," a large pale pinkish lavender. "Josephine Byrnes," while not new this year, held a place of distinction with its dahlia-red blooms among the yellow and white bush plants on the side-tables.

The records show that 59,182 persons visited the chrysanthemum show this year. Last year there were about 40,000 visitors.

Weather and soil conditions have generally been favorable for the seeding and germination of wheat in Canada, and the crop should enter the winter in good condition. The condition of fall wheat is favorable in the United States, except in the lower plains region, where the crop has been injured by drought.

IMPROVE PRODUCTION AND HANDLING OF NAVAL STORES

Interesting Report Made by Bureau of Chemistry Upon Investigations with Rosin and Turpentine.

Discovers and Patents Cheaper and Simpler Process for Making Rosin Esters of Lighter Color — Finds Considerable Adulteration of Turpentine.

A shorter, cheaper, and simpler process for the manufacture of lighter colored rosin esters, experiments with different preservative coatings to prevent the rotting of rosin barrels, studies of methods for testing rosin and turpentine, and tentative standard types for turpentine, are among the results reported for the last fiscal year by Dr. F. P. Veitch, of the Bureau of Chemistry, United States Department of Agriculture, who is investigating the grading, weighing, handling, transportation, and uses as well as improved processes of preparing naval stores.

Takes Out Public-Service Patent.

A public-service patent has been applied for to cover the processes of manufacturing esters of lighter color and uniformly low aeidity, which, if granted, will be available for the use of anyone in the industry. These processes have been sueeessful on a laboratory scale and are now being developed on an industrial scale. The complete results as well as the details of the processes will be published when the work is completed.

The usual statistics on the production, stocks at the stills, at the ehief primary markets, and in the hands of the consuming industries have been collected and issued during the year.

Standard types for turpentine have been prepared to accompany the standard types for rosin which have been in use for six years. Sets of turpentine types have been deposited with the State supervising inspectors of naval stores, the ehairman of the naval stores committee of the National Paint, Oil, and Varnish Association, and the secretary of the Turpentine and Rosin Producers' Association for observation and trial.

The report calls attention to the need for keeping clean the standard rosin types. So vital does the Bureau of Chemistry consider cleanliness to accuracy in grading that once a year it calls in all the standard rosin types in order that they may be thoroughly cleaned. The report further advises that if any user of the standard types receives them with the glasses dulled with adhering rosin and dirt, they be earefully cleaned before being used, in accordance with the directions pasted inside the box, for accurate grading can not be done with dirty types.

Testing Rosin and Turpentine.

The composition and so-called physical constants of rosin of different grades and kinds have never been satisfactorily determined, says the report. No analyst has worked on all the grades and kinds of rosin, and in many instances the history of the samples on which work was done has not been known. Many requests have been received by the Department of Agriculture for information on this subject, and a very thorough investigation of it covering all grades and kinds of rosin is now under way. While the grade or color of rosin will undoubtedly continue to be the chief characteristic upon which it is purchased or used, this is not sufficient for many purposes.

The Bureau of Chemistry has recently developed and published a method for the detection of coal tars in turpentine, having previously published a method for the detection of mineral oils in turpentine. These two methods will enable the buyer of the turpentine to detect most forms of adulteration.

Chemists of the National Paint, Oil, and Varnish Association, and of other users of turpentine and rosin, as well as of producers, are invited, according to the report, to cooperate with the department in the study of methods of analysis and in furnishing information concerning special methods of examination required in testing rosin and turpentine for unusual or special purposes. The report recommends that whenever a shipment of turpentine is tested to determine its purity a sample of turpentine known to be pure be tested at the same time in order to show whether or not the method has been correctly carried out. Small samples of turpentine of known purity will be furnished upon application to the department to those chemists who desire them for proving their methods.

Extent of Adulterating and Misgrading.

The study of the adulteration of turpentine and the grading and weighing of rosin, according to the report, has shown that the adulteration of turpentine is still serious, especially outside the naval stores producing belt, in some instances mineral oil being sold when turpentine is asked for, and that the misgrading of rosin is still prevalent. Many shipments have been found to be as much as 50 to 60 per cent misgraded, while misgrading to the extent of 15 to 20 per cent

is not uncommon. The sale of adulterated turpentine, the report points out, defrauds the users as well as the producers, and also the honest dealers by cutting down the market for turpentine.

The misgrading of rosin results in losses to the producers and also to the users of rosin. Federal legislation that will permit calling in a referee in cases of dispute, and also make illegal the adulteration of turpentine, is the only means of controlling such adulteration and misgrading, according to a recently expressed opinion of the department.

ESTABLISH TENTATIVE GRADES FOR WHITE SPANISH PEANUTS

Encouraging interest has been shown in the southeastern United States in the tentative grades for shelled White Spanish peanuts recently formulated by the United States Department of Agriculture. Prominent members of the Southeastern Peanut Association, which includes the majority of the shelling mills in Georgia, Alabama, Florida, and South Carolina, have stated that they will manufacture goods in conformity with the standards proposed by the Government and will sell on that basis.

The grades are known as U. S. No. 1, U. S. No. 1 Splits, U. S. No. 2, and U. S. No. 3, and are based on a thorough study and investigation made by a department representative in the important centers of production and in the leading markets. The grades embody what are considered the most approved commercial practices. A large number of samples of shelled peanuts were secured from commercial sources and put through screens having the same size perforations as the screens used by most large mills.

It was found that shelled peanuts were arriving on the markets of the country in better condition and showing a smaller percentage of shriveled, damaged, or moldy peanuts and foreign material than either the trade or the shippers had thought was the case. If ordinary care is exercised in running the peanut sheller and sizers at proper speed, and in picking out undesirable material as the shelled product passes along the belt conveyor in the mills, any manager of a shelling factory will have no difficulty in meeting the grade requirements.

The No. 1 Split grade, which is a new grade, is designed to permit shipping a higher grade of split peanut than the regular No. 2. For many uses in the candy, bakery, and peanut-butter industries a high grade split peanut free from dust and grit is practically as satisfactory as a No. 1 or whole nut, and it is expected that the U. S. No. 1 Split grade will find early favor among both shellers and the manufacturers of peanut products.

The grades differ little from those adopted last May by the United Peanut Association at its convention in Chicago, subject to approval by the constituent associations. The Southeastern Peanut Association has recently requested the Department of Agriculture to make the Federal inspection service in the large terminal markets of the country available on peanuts of this year's crop. Copies of these tentative grades on shelled White Spanish peanuts can be secured upon application to the Bureau of Markets and Crop Estimates, United States Department of Agriculture, Washington, D. C.

States Given Great Quantities of War Materials for Road Building

Approximately $150,000,000 worth of surplus war materials, turned over by the War Department to the Department of Agriculture, was distributed through the Bureau of Public Roads to the various States for road-building purposes by November 1.

Under the Wadsworth-Kahn bill this surplus war material is sent to the States with the sole provision that it be used only for road-building purposes. A vast accumulation of machinery, equipment, supplies, and motor vehicles that was to have been used in France has thus been diverted to a useful peace-time purpose.

More Than 27,000 Motor Vehicles.

Included in the supplies distributed among the States are 27,198 motor vehicles, mostly trucks; 172 locomotives of various sizes; 25,000 gross tons of rails; more than 4,500,000 pounds of powder; and nearly 10,000 tons of TNT.

A compilation showing total deliveries of war material to the various States up to July 1, last, places the value of machinery, equipment, and supplies so delivered at $30,648,779; of motor vehicles, $74,730,568; and of spare parts, at $11,731,424. The total value of deliveries to the States up to that date was $117,110,751. That figure did not include material to the value of approximately $11,000,000, which was retained by the Department of Agriculture, largely for forest road work, which is not done by the States. Also, it is believed that the States have received, in addition to the amount above mentioned, approximately $5,000,000 worth of material shipped by the War Department from the various Army camps and not reported by the States as delivered.

The value of deliveries of surplus war material for road-building purposes to the States is in detail as follows:

Alabama	$2,587,740
Arizona	2,041,401
Arkansas	2,025,000
California	3,687,500
Colorado	2,527,640
Connecticut	643,500
Delaware	412,500
Florida	1,483,900
Georgia	4,271,600
Idaho	1,474,000
Illinois	5,462,400
Indiana	2,942,920
Iowa	2,871,000
Kansas	2,591,600
Kentucky	2,011,900
Louisiana	1,472,100
Maine	973,500
Maryland	1,056,160
Massachusetts	899,800
Michigan	4,648,320
Minnesota	3,190,100
Mississippi	3,273,320
Missouri	3,669,800
Montana	2,400,400
Nebraska	3,347,660
Nevada	1,182,300
New Hampshire	412,500
New Jersey	1,657,900
New Mexico	2,133,440
New York	5,509,520
North Carolina	3,093,920
North Dakota	1,477,350
Ohio	4,194,900
Oklahoma	2,112,000
Oregon	1,662,000
Pennsylvania	4,384,600
Rhode Island	229,900
South Carolina	1,768,820
South Dakota	2,365,900
Tennessee	3,156,500
Texas	7,101,240
Utah	1,333,500
Vermont	529,100
Virginia	2,920,800
Washington	1,391,500
West Virginia	2,254,400
Wisconsin	3,042,000
Wyoming	1,236,900
Total	117,110,751

HESSIAN FLY INCREASES RAPIDLY.

If it were not for its parasitic enemies and unfavorable weather, the Hessian fly would increase in such vast numbers that wheat growing in this country would be practically impossible inside of two years. The United States Department of Agriculture, as a result of recent studies, now published in Department Bulletin 1008, Rate of Multiplication of the Hessian Fly, by W. R. McConnell, found that the increase in breeding of the insect was much higher than had been before realized. The data collected afford an explanation for the very sudden development of a Hessian fly outbreak and furnish a basis for predicting more accurately the approach of a dangerous infestation.

Weekly News Letter

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NEARLY 28,000 MILES OF GOOD ROADS BUILT IN 1921

Road building has recovered from the setback received during the war, and prospects are bright for the future. Approximately 14,000 miles of road have been constructed during the present season by the States in conjunction with Federal aid, according to the Bureau of Public Roads, United States Department of Agriculture, and probably an equal amount independent of Federal aid. More miles of improved road have been built than during any other year.

Costs of road grading and construction with local materials is down practically to the 1914 level. Some reductions, also, have been made in freight rates on road materials. The importance of this item is shown by the fact that in some cases it has been estimated that increased freight rates have added 10 per cent to the cost of a road. Prices of manufactured road materials tend downward; the present level is materially lower than that of a year ago.

With the new appropriation by Congress of $75,000,000, added impetus will be given to new road construction. Many of the States are considering enlarged amounts of State aid, and the new law will have a tendency to encourage this policy. It will also secure the construction of a system of interstate and intercounty highways, rather than haphazard selection of roads as in some cases in the past.

The meeting of the Association of State Highway Officials to be held in Omaha, Nebr., December 5 to 12, will be devoted largely to the discussion of ways and means of complying with the new law and getting construction under way.

AMERICAN CHRYSANTHEMUMS TO BE EXCHANGED WITH CHINA

Two features of particular interest at the Twentieth Annual Chrysanthemum Show held by the United States Department of Agriculture at Washington, D. C., November 2–11, were the Chinese seedlings and the 50 or more varieties of Japanese chrysanthemums shown in this country for the first time. The Chinese varieties were grown from seeds purchased by the department last January. They are of the pompon or bush type, and for the most part are pale yellow-centered flat blooms, with delicately curled white or tinted petals, or like the daisy chrysanthemum, white or pink. In connection with the exhibit of Chinese seedlings chrysanthemums, a system of exchange has been proposed by the University of Nanking whereby a number of interesting and promising types of American-grown plants will shortly be sent to China.

Over 50 varieties of Japanese chrysanthemums, chiefly of the pompon type, were shown here for the first time. They were brought to this country as very small plants in February, 1921. This collection represents many distinctive and unusual flowers. Even an amateur could instantly pick out the somewhat loose, sprawly heads of the Japanese chrysanthemums, with hollow petals that are very much like quills. The colors vary from white to magenta-lavender, most of the flowers showing two colors. Yellow or bronze is the prevailing tone among the Japanese varieties.

ALASKA FOREST RANGERS TRAVEL BY MOTOR BOAT

A forest ranger who rides a motor boat instead of a horse would be a novelty in the Western States, but is the rule in the Tongass National Forest, Alaska. In a report to the United States Department of Agriculture of conditions there, E. A. Sherman, associate forester, writes as follows:

"The Tongass National Forest is completely equipped with an admirable system of waterways. Here instead of saddle and pack horse the ranger rides a seagoing motor boat. He guides his steed by means of a wheel instead of reins; feeds it gasoline instead of oats; tethers it at night with an anchor in some sheltered cove instead of with a picket rope in a mountain meadow, and uses the paint brush in lieu of a currycomb."

Rangers in that national forest travel in couples, two men to each motor boat. The boat is a staunch, seaworthy craft, 35 to 40 feet long, equipped with 25-horsepower engines, and with fully inclosed cabin and pilot house. Except when they are at headquarters or actually at work in the woods the rangers eat, sleep, and live on their boats.

"Summer is the busiest season," Mr. Sherman reports. "Their day is not an 8-hour day, but usually a 16 or 20 hour day, with only one man actually on duty while the boat is running. The ranger is just as proud of his boat as the Bedouin horseman is of his steed, and the ranger boats in Alaska are the most distinctive craft sailing the waters of the Alexander archipelago."

OVER 20 TONS OF PEACHES FROM CALIFORNIA ORCHARD

A peach growers' contest was conducted in 1920 in Sutter County, Calif., in which 83 orchards owned by 55 farmers were entered. Each contestant turned in a complete account of the methods by which his crop was raised. The weights of the peaches grown and the quantities of each grade were carefully tabulated at the canneries to which these peaches were consigned. Careful judging was done under a strict set of rules formulated by a committee from the county extension organization, in which the United States Department of Agriculture and the State agricultural college were represented. The first prize was awarded to a woman grower, whose orchard produced at the rate of 40,240 pounds per acre of No. 1 peaches, for which payment was made by the cannery. The awarding of the prizes and the announcement of the methods by which the high yields were obtained constituted a most efficient demonstration of the best methods.

The same contest for 1921 closed on September 28. Due to frost and rains this year the yield was not nearly as heavy as last season. The highest record in the county for 1921 was 31,200 pounds. The woman who won first prize the preceding year won the cup for quality and condition of orchard, this year, and had a yield of 27,357 pounds. The heaviest Tuscan orchard yield was 18,877 pounds, and the heaviest midsummer orchard yield was 26,822 pounds to the acre.

New Infestation of Pink Bollworm Discovered in Ellis County, Tex.

An important conference on the pink bollworm situation in Texas, occasioned by the recent discovery of new infestations in Ellis County, one of the largest cotton-producing counties in the State, has been called by the Federal Horticultural Board of the United States Department of Agriculture, to be held at Dallas, Tex., December 2 at 10 a. m., in the assembly room of the Texas Chamber of Commerce.

Notices of the conference have been sent by the board to State entomologists, commissioners of agriculture, and officials of cottonseed crusher associations and the American Cotton Association urgently requesting their attendance.

A Serious Situation Is Present.

The occurrence of the pink bollworm in Ellis County is looked upon as by far the most important development in the spread of the pest since its introduction into the United States. According to Charles L. Marlatt, chairman of the board, the new situation demands early and most serious consideration by the authorities in Texas as well as by the authorities of all other States that produce cotton. In the meantime steps have been taken to secure, by cooperation on the part of the State of Texas and the Cotton Seed Breeders' Association of that State and others interested, adequate control of the movement of seed and cotton from Ellis County, pending the determination of the conference.

Text of the notice sent out by the board is as follows:

"Very recently five fields in the vicinity of Ennis, Ellis County, Tex., have been found infested by the pink bollworm. This county is one of the largest producers of cotton in Texas. Another important consideration is the fact that in Ellis County are located a number of the largest cottonseed farms in the South.

"The Ellis County infestation apparently originated in seed shipped from Carlsbad, N. Mex., of the crop of 1920, prior to the determination of the incipient infestation at that point January 6, 1921. All of the seed shipped from the Carlsbad crop of 1921 has been adequately disinfected by heating. Twenty-seven carloads of seed produced during the years 1918–1920 were shipped to Ennis. A large number of additional carloads during this period went to a number of widely separated points in Texas. A small number of shipments were also made to points in Oklahoma. At many of these points the Carlsbad seed was more or less subdivided and in many cases used for planting purposes. All of these points have been under field inspection throughout the season, and the Ellis infestation is the only one so far discovered.

"Following the infestation determined in 1918 in the Pecos Valley of Texas, separated by about 90 miles of semi-desert from Carlsbad, the Carlsbad project has been under intensive inspection to determine any possible infestation at that point. For example, in 1918, 111 man-days (in other words, full days of cotton field inspection) were given this district. In 1919, 56 man-days were devoted to scouting at Carlsbad. In 1920 scouting was continued for 48 days before the first infestation was found in standing field cotton January 6, 1921. Subsequent to this finding, 216 additional days were devoted to thorough field inspection throughout the Carlsbad project. This inspection developed only two infested fields out of 94 inspected, and a total of 16 pink bollworms were found.

Control Movement of Seed and Cotton.

"This occurrence of the pink bollworm in Ellis County undoubtedly is by far the most important development which has occurred in relation to the finding of the pink bollworm in the United States. It demands early and most serious consideration by the authorities in Texas as well as by the authorities of all other States which produce cotton. For this reason the board has decided to hold a conference in Dallas on December 2. It will be called to order at 10 o'clock in the morning in the assembly room of the Texas Chamber of Commerce. It is urgently requested that you attend this conference.

"In the meantime steps have been taken to secure, by cooperation on the part of the State of Texas and the Cotton Seed Breeders Association of that State and others interested, adequate control of the movement of seed and cotton from Ellis County, pending the determination of the conference."

W. H. CROZIER, NASHVILLE, TENN. VIOLATES GRAIN STANDARDS ACT

Findings of the Secretary of Agriculture recently issued show violations of section 5 of the United States grain standards act by W. H. Crozier, doing business as W. H. Crozier & Co., Nashville, Tenn. The Secretary found that pursuant to a contract with a dealer in North Carolina for a quantity of No. 2 or 3 White oats, Crozier & Co. shipped a carload of oats which had been graded No. 4 White by a licensed inspector, invoicing the same as No. 3 White.

In another case the Secretary found that the same shipper had a contract for No. 2 White corn with a dealer in South Carolina, and shipped a lot of corn which had been graded Sample Grade White by a licensed inspector, invoicing the same as No. 2 White at the contract price. In neither case, according to the findings, did Crozier & Co. notify the consignee of the true grade of the grain as shown on the inspection certificate.

JACKSON GRAIN CO. VIOLATES U. S. GRAIN STANDARDS ACT

Findings of the Secretary of Agriculture recently issued show a violation of section 5 of the U. S. Grain Standards Act on the part of C. E. Jackson, of the Jackson Grain Co., Hastings, Nebr. The Secretary found that this company had a contract with a shipper in Nebraska for a carload of No. 2 hard wheat, subject to official weight and inspection, and that the car involved was shipped to Kansas City where it was graded by a licensed inspector as No. 3 Hard Winter. The findings further show that upon receipt of the inspection certificate C. E. Jackson altered the same to show a dockage content of 3 per cent, and he then transmitted the certificate so altered to his shipper for the purpose of effecting a settlement, rendering account sales showing a deduction of 3 per cent from the net weight of the wheat.

CALIFORNIA HATCHERYMEN WILL USE CERTIFIED EGGS

For the improvement of poultry by careful selection of breeding stock, the poultry department of the division of extension work of the California College of Agriculture has instituted a new project with the hatcherymen of Alameda County. Previous to this time, the assertions of the egg dealer were the only guide to those who bought eggs for hatching and dealt in baby chicks, as to the quality of the eggs they were getting.

Under the present plan about 20,000 birds have been inspected by poultry experts, and those which have met the requirements decided upon for weight, egg production, size and shape of eggs, and other points, have been accepted as eligible for the production of eggs for hatching. Hatcherymen have agreed to use no eggs except those from tested flocks.

Best System of Crop Rotation and Cultural Methods in Dry-Land Region

Good husbandry, rather than any royal road to success, is the solution of profitable crop production for the farmers living in that part of the country centering around the Government experimental station at Edgeley, N. Dak. The work of 15 years of investigations is summed up in a new United States Department of Agriculture Bulletin, No. 991, Crop Rotation and Cultural Methods at Edgeley, N. Dak.

Test Spring and Fall Plowing.

The work covered rotations of corn, oats, and wheat in various orders, with alternations of green manure crops, sod crops, and fallow land. The benefits of both spring and fall plowing were tested, and the results for that locality are listed in the bulletin. Among the conclusions reached are that time of plowing is less important than timely seeding; that fallow may be usefully enlisted as an emergency measure for cleaning up weed-infested lands, or in preparing for a larger acreage of the succeeding season than can be handled in the present.

Green manuring is found entirely unjustifiable as it increases the expense without increasing the yields. The effect of barnyard manuring is comparatively small, but appears to be cumulative. The controlling factor in crop yields seems to be the seasonal rainfall, and the most efficient cultural methods are those looking toward storing water in the soil.

Corn gives such small yields that it is not a strong competitor of small grain crops, but it is recommended in rotation in place of fallow to clean the ground of weeds. It also encourages the raising of live stock which are necessary to consumption of fodder. Brome grass has been found to lend itself well for use in a rotation, and is a sure and reliable hay crop.

Brome Grass Proves Reliable.

The effect of alfalfa in a rotation has apparently been to depress the yield of the crops immediately following. Results indicate that the sod crops, while forming part of the rotation, should enter into it only as it is necessary to make new seedings and plow up the old in order to maintain the maximum production of the brome grass or alfalfa. The remaining ground should be in a rotation of corn on spring plowing followed by wheat on disked corn ground, and it by wheat, oats, or barley. If this provides too large an acreage of corn, the rotation may be lengthened by letting small grain follow small grain for a greater number of years.

LIMITS ON REGISTRATION OF FARM NAME AS TRADE-MARK

(*Continued from page 1.*)

trade-mark act of 1905, it was not possible to register a name that is merely geographical, or merely descriptive, or is merely a surname not displayed in some particular or distinctive manner. Such marks, however, can be registered under the act of 1920, if they have been in use by the applicant in interstate commerce for not less than one year. In this way Congress sought to give recognition to a common-law right in a name used as a trade-mark on the ground of its use.

LEADING FARM COUNTIES RANKED BY PRODUCTS' VALUE

Citrus fruits and walnuts have placed Los Angeles County, Calif., first in rank of all counties of the country in the value of agricultural products, according to the Bureau of the Census, which has just made public a list of the 50 counties leading all others in 1919 in the worth of their agricultural products. Hay and forage are also important crops which helped swell the total of Los Angeles county's farm products to $71,579,899 in value that year.

Next to Los Angeles County comes Fresno County, also in California, the value of whose grapes, peaches, hay, and forage and dairy products is placed at $55,110,101 for the year. Aroostook County, Me., a large producer of potatoes, ranks third, its products totaling $54,376,256. Fourth place is occupied by San Joaquin County, Calif., whose crops were worth $41,191,240 in the year. Potatoes, grapes, barley, and hay and forage, in the order named, constituted the principal agricultural products of that county.

Lancaster County, Pa., whose leading crop was tobacco, was fifth with products valued at $40,776,212; Yakima, Wash., with apples leading in the list of farm products, was sixth; Tulare, Calif., with grapes as the first product, seventh; and Sonoma, Calif., whose chief agricultural industry was the raising of poultry, eighth. Whitman County, Wash., ninth on the list, is the first grain raising county to rank among the leaders. Dane County, Wis., with dairy products leading, is tenth.

The 50 leading agricultural counties were distributed among the several States as follows: California, 13; New York, 7; Illinois, 5; Texas, 4; South Carolina, 4; North Carolina, 3; Washington, 2; Wisconsin, 2; and 1 each for Arizona, Colorado, Connecticut, Maine, Minnesota, and Mississippi.

ENEMIES OF GRAPES ARE MANY AND DIFFICULT TO CONTROL

Perhaps no horticultural crop so well illustrates the serious loss which may result from native species of insects and fungi attacking cultivated varieties of their natural wild food plants as does the grape. In a new Farmers' Bulletin of the United States Department of Agriculture, No. 1220, Insect and Fungous Enemies of the Grape, 64 out of 75 pages are devoted to description, history, and control measures for those of principal importance.

Several of these species in certain sections rank as first-class pests, such as the grape rootworm, grape-berry moth, grape curculio, grape leaf-hopper, grape leaf-folder, grapevine flea-beetle, rose-chafer, grape phylloxera, and the like. The bulletin also deals with species which ordinarily are not important except during occasional seasons, or more or less locally, but are nevertheless the subject of many inquiries to the department every year.

Insect and fungous enemies of grapes are not less amenable to treatment than pests of other fruit crops, and the bulletin outlines methods of prevention and control which have been demonstrated by the investigators of the department to be successful.

The bulletin may be had on application to the department.

BEETLES, ONCE HELPFUL, NOW SERIOUS FARM PEST

Disappearance of the variety of grasshopper which caused historical damage in Kansas a generation ago, has removed the one excuse of blister beetles for living in that region, and the United States Department of Agriculture has been making studies looking toward their control. A study of these insects and measures for their control is reviewed in a recent publication of the department.

The larvae of blister beetles eat grasshopper eggs, and when, in the language of Scripture, the grasshopper was a bur-

den the beetles were friends of the Kansas farmer. The species of grasshopper responsible for a large share of the injury, and the one that stands to-day an insect bogy to those of limited entomological knowledge, has disappeared from the scenes of its former activity so completely that specimens of it are curiosities to the new generation of entomologists.

But as friends they are, after all, comparative failures, for blister beetles are found to destroy large acreages of sugar beets, alfalfa, beans, and peanuts. On beans, peanuts, and locust trees, and to a large extent on alfalfa, the blister beetles usually destroy only the petals and pollen of the flowers; but on Irish potatoes, sugar beets, and to a lesser extent on the Russian olive, they commonly strip the plant of its leaves.

Several species or different kinds of these insects are described, and their life cycle traced, in the bulletin. A Paris green and quicklime spray—1 pound of each to 25 gallons of water, and a zinc arsenite spray, 1 pound to 20 gallons of water, have been found effective against the beetles.

AMENDMENT TO REGULATIONS UNDER GRAIN STANDARDS ACT

The Secretary of Agriculture has signed an amendment to the regulations under the United States grain standards act, reducing the minimum fee in an appeal or dispute on bulk or sacked grain in carload lots from $3 to $2 per car, and establishing a flat rate of 50 cents per 1,000 bushels on bulk or sacked grain other than in carload lots. This latter rate is applicable to grain loaded into vessels. The amendment became effective October 29, 1921.

MARKET NEWS SERVICE WILL BE FURNISHED TO MINNESOTA

In cooperation with the Bureau of Markets and Crop Estimates of the United States Department of Agriculture, State organizations in Minnesota are combining to give farmers, dealers, and consumers there a comprehensive market news service. The State department of agriculture and the Federal bureau will assemble the information to be distributed, the College of Engineering will transmit the news by radio telegraph and telephone from the university station, and the College of Agriculture, through its extension service, will develop an organization for receiving the daily reports at country points and making them of practical value to shippers and others.

Federal leased wires will be used to transmit from the more important central markets to St. Paul and Minneapolis the daily markets news on fruits, vegetables, poultry, dairy products, and live stock. This national news will be supplemented by local markets news furnished by the State department of agriculture. The radio division of the College of Engineering will provide licensed student operators to send the messages and will handle all technical problems arising in connection with radio operation. It will also give instruction regarding equipment most suitable for receiving the reports transmitted from the station.

TOMATO-SEED PRESS CAKE APPROVED AS PROTEIN FEED

The value of tomato-seed press cake as a source of protein feed for live stock has been demonstrated by a series of experiments recently conducted in the protein investigation laboratory of the Bureau of Chemistry, United States Department of Agriculture. It has been previously estimated by the department that over 2,000 tons of tomato seeds are largely wasted annually as a by-product in the manufacture of catsup and other products by the tomato pulping plants in the United States. Tomato seeds contain approximately 22 per cent of a valuable oil. The press cake which remains after expelling the oil contains about 37 per cent of protein, which chemical and nutritional experiments have shown to be of high food value. Young albino rats were fed on a diet in which tomato-seed press cake furnished the only source of protein, the diet having been made adequate in other respects by the addition of the other essential dietary factors. On this diet the rats were enabled to grow at the normal rate, showing that the proteins of the tomato seed contain all of the amino acids essential to the growth of animals. It was also found that the press cake contains sufficient amount of water soluble, or antiberi-beri vitamine.

STATES GIVEN WAR TRUCKS AND AUTOS FOR ROAD WORK

More than 27,000 motor vehicles have been distributed by the Bureau of Public Roads of the United States Department of Agriculture among the various States for road-building purposes. Up to October 31 a total of 27,198 had been so distributed, including 1,800 retained by the Department of Agriculture for use on roads in the national forests and in connection with the administration of the Federal aid act. These comprise virtually all the surplus motor vehicles turned over to the Department of Agriculture by the War Department to be distributed under the Wadsworth-Kahn Act among the States for road-building purposes. These vehicles, consisting mostly of motor trucks, are a part of the war materials originally intended for use in France.

The number of motor vehicles distributed to the States up to October 31 was as follows:

State.	Trucks.	Autos.	Total vehicles.
Alabama	440	105	545
Arizona	352	25	377
Arkansas	414	68	482
California	716	133	849
Colorado	403	57	460
Connecticut	153	24	177
Delaware	50	12	62
Florida	239	56	295
Georgia	581	159	740
Idaho	271	32	303
Illinois	1,006	169	1,175
Indiana	629	115	744
Iowa	679	93	772
Kansas	724	106	830
Kentucky	444	75	519
Louisiana	292	49	341
Maine	177	34	211
Maryland	211	26	237
Massachusetts	212	61	273
Michigan	710	121	831
Minnesota	617	84	701
Mississippi	414	70	484
Missouri	797	106	903
Montana	407	64	471
Nebraska	447	85	532
Nevada	229	36	265
New Hampshire	105	16	121
New Jersey	299	73	372
New Mexico	352	50	402
New York	1,132	162	1,294
North Carolina	620	112	732
North Dakota	341	46	387
Ohio	845	149	994
Oklahoma	479	59	538
Oregon	314	34	348
Pennsylvania	837	136	973
Rhode Island	57	10	67
South Carolina	355	64	419
South Dakota	380	60	440
Tennessee	488	94	582
Texas	1,321	203	1,524
Utah	238	23	261
Vermont	106	12	118
Virginia	420	76	496
Washington	357	68	425
West Virginia	337	49	586
Wisconsin	581	102	683
Wyoming	229	28	257
Department of Agriculture	1,303	497	1,800
Total	23,110	4,088	27,198

ACCOUNTING SYSTEM FOR GINNERIES.

A system of accounting aimed to meet the needs of cotton ginneries generally as they are operated in the cotton belt has been worked out by the United States Department of Agriculture and is now published as Department Bulletin 985, entitled "A System of Accounting for Cotton Ginneries." Especial attention is given to the needs of custom ginneries, but it is believed that ginneries on private plantations will find this system of accounting helpful. No previous knowledge of bookkeeping, it is said, is necessary for using the system, each step of which is fully described in the bulletin.

Proposed Quarantine Against Satin Moth, Dangerous Enemy of Willows and Poplars

The advisability of quarantining the States of New Hampshire and Massachusetts to check the spread of the satin moth, a dangerous insect pest newly discovered in this country, will be considered at a public hearing to be held by the Federal Horticultural Board, United States Department of Agriculture, at Washington, D. C., December 13. Any person interested in the proposed action by the board may appear and be heard either in person or by attorney.

A Newly Discovered Pest.

Quarantine action, if decided upon, would prohibit or restrict the movement of the insect's principal carriers—poplar, willow, and related plants—from these States, or from any districts in them found to be infested with the pest, into other States and Territories.

The satin moth, so called from its white, satinlike appearance, occurs throughout Europe, and is particularly an enemy of poplar and willow. It was first reported in this country about July 1, 1920, in the Fellsway district north of Boston, but from its distribution and abundance, as later determined, it is thought that it then had undoubtedly been in the United States for several years. It has not been possible to determine the source of its introduction, but the department thinks it probable that the insect was brought in with some importations of willows or poplars.

The insect hibernates as small larvæ, webbed over and concealed in crevices of the bark, and are so hidden and inconspicuous as often to escape even the most careful inspection.

While this pest is looked upon as not of prime importance, it is a very serious enemy of the plants it attacks, and the prevention of its further distribution in the United States is highly desirable. Should quarantine action be decided upon, the control of interstate movement of its possible carriers can easily be taken care of in connection with the general moth quarantine against the gipsy and brown-tail moths now being enforced by the department, in cooperation with the States concerned, over and far beyond the area now reached by the new pest.

The present known distribution of the satin moth covers a considerable area extending from Boston into southeastern New Hampshire and involves some 63 towns in Massachusetts and 7 in New Hampshire. It is proposed that any quarantine restrictions shall be limited to the areas within these States actually determined from time to time to be infested. The inclusion of these States, therefore, as a whole for the purpose of the forthcoming hearing is merely to make it possible in the future to add any new areas without the delay and publicity attending a formal notice of hearing.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended November 16, 1921:

Sweet Potato Growing. By Fred E. Miller, Assistant Horticulturist, Office of Horticultural and Pomological Investigations. Pp. 31, figs. 22. Contribution from the Bureau of Plant Industry. Revised. (Farmers' Bulletin 999.)

Cotton Diseases and Their Control. By W. W. Gilbert, Pathologist, Office of Cotton, Truck, and Forage-Crop Disease Investigations. Pp. 32, figs. 18. Contribution from the Bureau of Plant Industry. Revised. (Farmers' Bulletin 1187.)

Insect and Fungous Enemies of the Grape. By A. L. Quaintance, Entomologist in Charge, Fruit Insect Investigations, and C. L. Shear, Pathologist, Fruit-Disease Investigations. Pp. 75, figs. 79. Contribution from the Bureau of Entomology and Bureau of Plant Industry. (Farmers' Bulletin 1220.)

Wheat Scab and Its Control. By Aaron G. Johnson and James G. Dickson, Pathologists, Office of Cereal Investigations. Pp. 16, figs. 12. Contribution from the Bureau of Plant Industry. (Farmers' Bulletin 1224.)

Inspection and Grading of Hay. By H. B. McClure, Specialist in Hay Marketing, and G. A. Collier, Investigator in Hay Marketing. Pp. 16, figs. 3. Contribution from the Bureau of Markets and Crop Estimates. (Department Bulletin 980.) Price, 5 cents.

A System of Accounting for Cotton Ginneries. By A. V. Swarthout, Investigator in Market Business Practice, and J. A. Boxell, formerly Assistant in Market Business Practice. Pp. 42. Contribution from the Bureau of Markets and Crop Estimates. (Department Bulletin 985.) Price, 10 cents.

Methods of Conducting Cost of Production and Farm Organization Studies. By F. W. Peck, Farm Economist. Pp. 47, figs. 8. Contribution from the Office of Farm Management and Farm Economics. (Department Bulletin 994.) Price, 5 cents.

Accounting Records for Sampling Apples by Weight. By J. H. Conn, Assistant in Market Business Practice, and A. V. Swarthout, Investigator in Market Business Practice. Pp. 13. Contribution from the Bureau of Markets and Crop Estimates. (Department Bulletin 1006.) Price, 5 cents.

Rate of Multiplication of the Hessian Fly. By W. R. McConnell, Entomological Assistant, Cereal and Forage Insect Investigations. Pp. 8. Contribution from the Bureau of Entomology. (Professional Paper.) (Department Bulletin 1008.) Price, 5 cents.

Soil Survey of Reynolds County, Missouri. By H. H. Krusekopf, and W. De Young of the University of Missouri, and W. I. Watkins and C. E. Deardorff, of the U. S. Department of Agriculture. Pp. 30, pls. 3, fig. 1, map. (From F. O. Soils, 1918.) Price, 15 cents.

State Laws and Court Decisions Relating to Cattle-Tick Eradication. Compiled by Harry Goding, Administrative Assistant. Pp. 71. Contribution from the Bureau of Animal Industry. (Department Circular 184.) Price, 5 cents.

Mosquito Survey of Mayaguez. By W. V. Tower, Entomologist. Pp. 8, pls. 4. November 2, 1921. (Circular 20, Porto Rico Agricultural Experiment Station.) Price, 5 cents.

No copies available for distribution by the department.

Journal of Agricultural Research. (For sale only.) Vol. 22, No. 4. Oct. 22, 1921. Contents: Flora of Corn Meal. (E-16.) By Charles Thom and Edwin Le Fever.—Hopkins Host-Selection Principle as Related to Certain Cerambycid Beetles. (K-102.) By F. C. Craighead.—Notes on the Organic Acids of Pyrus coronaria, Rhus glabra, and Acer saccharum. (G-249.) By Charles E. Sando and H. H. Bartlett.—Fertility in Shropshire Sheep. (Ill.-11.) By Elmer Roberts. Pp. 179-234. Price, 15 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your requests definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

LEAD ARSENATE SPRAY KILLS WALNUT HUSK-MAGGOT FLIES

Experiments in the control of the walnut husk-maggot, a serious enemy of the black walnut, have been conducted with success by the Bureau of Entomology, United States Department of Agriculture. The results of the work accomplished as far as it has gone are now published by the department in Department Bulletin 992, entitled the "Walnut Husk-Maggot," by Fred E. Brooks. The habits and life history of the insect have been determined sufficiently to allow the study of control measures, which have been conducted successfully in two groves.

A lead-arsenate spray was used in both instances, with the result that in one grove a count of the nuts showed that 4 per cent had been attacked by the maggots, compared with 60 per cent destruction the year before. In the other the condition was estimated as 75 per cent better than during the previous season. Flies confined in roomy wire-screen cages were observed to feed freely on sweetened water, to which sufficient lead arsenate had been added to give the liquid a milky color. They, however, succumbed slowly to the poison, and further tests are thought advisable before this treatment can be fully recommended.

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Weekly News Letter

Published by the
United States Department of Agriculture
Washington

Vol. IX. DECEMBER 7, 1921 No. 19

HOW GOVERNMENT CROP REPORTS ARE MADE UP

Over 200,000 Reporters Contribute Estimates Based on Knowledge of Local Conditions.

Trained Field Agents in Each State Supervise Work of Gathering Statistics—Utmost Secrecy Used in Guarding Information Until Reports Are Released.

The time is 2.14 p. m.; the place, the United States Department of Agriculture, Washington, D. C. In an anteroom several men are standing around a table, each with one hand upon it, holding a large sheet of paper. The quarter hour strikes. There is a race for the door. A moment more and telegraph wires into virtually every city and town in the United States are singing with the message of estimated crop conditions.

At the last meeting of the General Assembly of the International Institute of Agriculture at Rome, made up of delegates from the principal countries of the world, it was freely conceded that the United States Department of Agriculture has developed the most complete and accurate system of agricultural statistics ever devised. The work of crop estimating is so systematized and safeguarded that no one in or out of the department can know what a given crop report will be until the estimate is completed a few minutes before its release, and in that short interval locked doors and disconnected telephones prevent anyone from obtaining advance information.

Reports Come from Every Town.

There are approximately 220,000 voluntary crop reporters located in all parts of the United States. A trained statistician or field agent is also placed in each State or group of similar States and supervises the work of gathering statistics in the territory under his charge. At the end of each month each field agent tabulates the crop information received from his reporters, averages and summarizes the data, and reports the result to the Department of Agriculture at Washington.

Local reporters in every township or other small civil unit in every county in the United States report direct to the department every month crop conditions under their observation. Each county, also, is represented by a county reporter, who reports his personal observations, the reports of neighbors and others, and information received by interviews and over the telephone.

The monthly reports cover acreage, condition, yield, total production, stocks on farms, progress of farm work, wages, supply or deficiency of farm labor, fertilizers, and seeds. These reports are made for about 60 crops, which represent about 95 per cent of the total agricultural production in the United States.

The reports of field agents on the speculative crops are mailed direct to the Secretary of Agriculture in special envelopes. These are separated from other mail in the Washington post office and are delivered by messenger to the Secretary or his first assistant, who places them, with the seals unbroken, in a safe, to which he alone has the key. The reports remain locked in the safe until the morning of crop report day. The returns on speculative crops from the voluntary reporters come direct to the Bureau of Markets and Crop Estimates and are tabulated on separate sheets for each crop.

Strict Precautions to Observe Secrecy.

On the evening before crop-report day all telephones are disconnected. The next morning all doors are locked, and guards are stationed at the outer doors to prevent anyone entering or leaving when the crop-reporting board is in session. The sealed reports of field agents and crop specialists in the custody of the Secretary are turned over to the chief of the bureau, and the crop-reporting board begins its work. The board is composed of the Associate Chief of the Bureau of Markets and Crop Estimates, three of his most experienced assistants, and usually one or more field agents.

Each member of the board is supplied with a separate sheet for each crop. On

(Continued on page 16.)

CONTROL OF BOLL WEEVIL VITAL PROBLEM TO PLANTERS

Burning or Plowing Under All Cotton Plants Will Avoid Much Loss Next Year.

Fall Destruction of Plants Kills Many Weevils That Would Otherwise Live Over Winter—Fall Plowing Also Makes Early Planting Possible.

The great destruction wrought by the cotton boll weevil this year has made the problem of its control a vital one to practically all cotton planters. Everywhere the question is heard, "What can be done to avoid this loss next year?"

For many years prior to the development of poison-control measures the United States Department of Agriculture advocated fall destruction of cotton plants by burning or plowing under, as the most important step in controlling the boll weevil. It is still good practice as an auxiliary to control by poison.

Right Time to Destroy Plants.

The proper time for the destruction of the plants in the fall is whenever the weevils have become so numerous that there is no prospect that any more cotton will be made. It is an easy matter for any planter to determine this point by an examination of a few plants in his field. Whenever it is found that all, or nearly all, of the squares and some of the bolls are being punctured, there is no hope for producing any more cotton. The farmer should then wait until the bolls already set on the plants have opened, and destruction should then take place immediately.

By all means, if possible, destruction of plants should take place before frost, but destruction after frost, though not nearly as efficacious as early destruction, should always be practiced when it has not been possible to remove the plants previously. The plants should be plowed under deeply, or completely destroyed by fire. No sprout cotton should be left to furnish breeding places for the

weevils. There are four principal reasons why the process of fall destruction should be practiced universally by planters in infested regions:

Fall Destruction Recommended.

First. Fall destruction prevents absolutely the development of a multitude of weevils which would otherwise become adult within a few weeks of the time of hibernation. The destruction of the immature stages of weevils in infested squares and bolls is accomplished, while the further growth of squares which may become infested later is prevented. This stops materially the development of weevils which would normally hibernate successfully, and by decreasing the number of weevils which will emerge in the spring the chances for a successful crop the following season are very greatly increased.

Second. A proper manipulation of the stalks will bring about the destruction of a great majority of the weevils which are already adult.

Third. It has been shown conclusively that the bulk of the weevils which survive the winter are those which reach maturity late in the season. It is evident that the weevils that pass the winter and attack the crop of the following season are among those developed latest in the fall and which, in consequence of that fact, have not exhausted their vitality by depositing eggs for any considerable length of time. Fall destruction of the plants, increasing the length of the hibernating period, reduces manyfold the number of weevils in the fields that would otherwise emerge in the spring to damage the cotton.

Fourth. Clearing of the field in the fall makes it possible to practice fall plowing, which is not only the proper procedure in any system of cotton raising but also greatly facilitates the early planting of the crop the following spring. The ground becomes clean by this practice, so that but few places for shelter are left for the weevils, and various climatic conditions still further reduce the number of the survivors.

Early Planting Beats the Weevils.

The early planting of the crop next spring and the use of an early maturing variety are also strongly urged. The fall destruction of plants will reduce the number of weevils which will survive the winter. By getting the cotton crop started early it is often possible to get it well on the way to maturity before the few weevils surviving the winter have time to propagate to the point where they become destructive.

Destroy the cotton plants in the fall and plant early the following spring.

BLUEBERRY CULTURE OFFERS NEW AGRICULTURAL INDUSTRY

A Valuable Fruit That Thrives Only on Sour or Acid Land Worthless for Most Crops.

Through Selection and Hybridization Blueberries as Large as Concord Grapes Have Been Produced—Propagation of Selected Plants Requires Great Skill and Care.

Blueberries as large as Concord grapes have been produced through hybridization. Introduction of the blueberry into agriculture has more significance than the mere addition of one more agricultural industry to those already in existence. Blueberries thrive best in soils so acid as to be considered worthless for ordinary agricultural purposes. Blueberry culture, therefore, not only promises to add to the general welfare through the utilization of land almost valueless otherwise, but it offers a profitable industry to individual land owners in certain districts in which general agricultural conditions are especially hard and unpromising, and it suggests the possibility of further utilization of such lands by means of other crops adapted to acid conditions.

Blueberry Grows Only in Acid Soil.

Success in blueberry culture rests especially on the recognition of two peculiarities in the nutrition of these plants, says Frederick V. Coville in a new department bulletin No. 974, Directions for Blueberry Culture, 1921, recently issued by the United States Department of Agriculture. These peculiarities are the requirement of an acid soil and their possession of a root fungus that appears to have the beneficial function of supplying them with nitrogen. Good aeration of the soil is another essential. Although the highbush or swamp blueberry occurs frequently in swamps or other wet places, the plants occupy situations which are exposed to air during the root-forming period of summer and autumn. The swamp blueberry grows best in soils naturally or artificially supplied with adequate moisture.

Next in importance to soil conditions is a convenient location with refereuce to a good market, the bulletin points out. The berries should reach their destinatiou without delay, preferably early in the morning following the day of picking. To secure the best price they should also reach the market before the height of the main wild blueberry season. A situation to the south of the great areas of wild blueberries in northern New England, Canada, and northern Michigan is therefore desirable. One of the most promising districts for blueberry culture is the cranberry region of New Jersey, for there an ideal soil occurs in conjunction with an early maturing season and excellent shipping facilities to the markets of Philadelphia and New York.

The importance of superior varieties is particularly stressed in the bulletin. From the market standpoint, the features of superiority in a blueberry are sweetness aud excellence of flavor; large size; light blue color, due to the presence of a dense bloom over the dark-purple or almost black skin; "dryness," or freedom from superficial moisture, especially the fermenting juice of broken berries; and plumpness; that is, freedom from the withered or wrinkled appearance that the berries begin to acquire several days after picking.

The cultivator is urged to begin with the purchase of a few plants of selected hybrid varieties, or by the transplanting of the best wild bushes selected when in fruit for the size, color, flavor, and earliness of the berry aud the vigor and productiveness of the bush. These he should propagate by layering, by division, and by cuttings. Through a combination of these methods, a valuable old plant can often be multiplied by several hundred at one propagation, the fruit of the progeny retaining all the characteristics of the parent. Detailed directions for the various methods of propagation are given in the bulletin.

Clean Cultivation Is Desirable.

In field planting it is recommended to prepare the land by cultivation previous to setting, so as to subdue the wild growth. Plants of the wild swamp blueberry or its hybrids should be placed 8 feet apart each way, as they will nearly or quite cover the ground when they reach full size. When first planted, however, bushes are preferably set 4 feet apart in the row, with the rows 8 feet apart. This spacing permits machine cultivation in one direction.

The lowbush berry may be spaced 3 by 6 feet, which will give the plants adequate room for many years. Tillage should be given to keep down weeds and grass, and is best done by horse cultivation with a spring-tooth harrow, supplemented by careful hand hoeing and hand weeding close around the plants. Tillage should be shallow, as the roots are very close to the surface.

The use of manure or fertilizer is not advised at present in soils which contain the proper proportion and quality of peat and sand. The Department of Agriculture is carrying on experiments in

the cultivation of blueberries at Washington, D. C., and at Whitesbog, near Browns Mills, N. J. At the latter place a field of hybrids of about one-third of an acre set at 3 by 5 feet bore at the rate of 96 bushels an acre when 7 years old, and 117 bushels the following year. The berries sold in New York at a little over $10 a bushel. They bore a light crop the second year after planting, and the following year produced nearly 30 bushels an acre.

A copy of the bulletin may be obtained free on application to the Department of Agriculture, Washington, D. C.

CEDAR CHESTS WILL PROTECT WOOL CLOTHING FROM MOTHS

Chests made of red cedar heartwood are effective, if in good condition and thoroughly tight, in protecting clothing from clothes moths, it has been found by the United States Department of Agriculture. That is, provided proper precautions are taken first to beat, brush, and, if possible, sun all articles before they are placed in chests.

Since it is the odor of red cedar that kills young moth worms, special care should be taken to prevent undue escape of the aroma from the chests. Chests at all times should remain tightly closed except when clothing is being removed or placed in them, and this procedure should be accomplished quickly.

Clothes moths during their growth pass through different stages known as the adult or moth miller, the worm or larva, and the pupa stages. It is only the larva or worm that damages fabrics. The moth miller merely lays the eggs from which the worms hatch. Cedar chests do not kill the moth miller, its eggs, or pupae. Neither do they kill the larvae or worms after they have become one-half to full grown.

Cedar chests, it has been found, do kill young worms. Practically all moth worms hatching within the chests die within one or two weeks after hatching, and a surprisingly large number die within two to three days. Of the worms hatching within cedar chests, from the 2,074 eggs recorded in experimental work, none were found alive one month from the date the eggs were placed in the chests.

Since cedar chests kill only the very young worms, it is of great importance that clothing be brushed and beaten before it is placed in them. If this is thoroughly done, the older resistant worms are removed and many of the eggs and young worms are killed.

If clothing is cleaned and brushed with great care and immediately rolled tightly with naphthalene in several thicknesses of unbroken paper, it will remain unmolested by moths. The ends of the package must be doubled back and securely tied or sealed so no moth can crawl into the package at the ends. Clothes moths will not eat through paper under ordinary conditions. One to two pounds of fresh naphthalene placed in any chest constructed as tightly as are cedar chests will protect clothing from moth damage just as well as cedar chests.

Nearly 30,000 Square Miles of Territory Released from Federal Tick Quarantine

Under an order by Secretary of Agriculture Wallace, effective December 10, a total area of 29,563 square miles in Texas, Georgia, Louisiana, and North Carolina is released from Federal quarantine to prevent the spread of Texas fever in cattle. With this addition there has been released 72 per cent of the whole area originally placed under quarantine, leaving 206,015 square miles in the various infested regions still under Government regulation.

Counties Which Are Affected.

In effect, the new order is as follows:

In Alabama, the remainder of Shelby County is requarantined.

In Georgia, the following counties are released from quarantine: Crawford, Cook, Coffee, Candler, Effingham, Emanuel, Irwin, Jeff Davis, Johnson, Jenkins, Montgomery, Toombs, Tattnall, Treutlin, Wheeler, and Worth.

In Louisiana, the parishes of Calcasieu and Point Coupes, and parts of the parishes of Caldwell and Red River are released; the parishes of Acadia, Avoyellee, De Soto, Natchitoches, Tangipahoa, and West Carroll, and a part of Rapides Parish are requarantined.

In North Carolina, Chowan County and the remainder of Pitt County are released from quarantine.

In Oklahoma, Sequoyah County is requarantined.

In Texas, the following counties and portions of counties are released from quarantine: Bandera, Blanco, Brazos, Edwards, Fannin, Freestone, Gregg, Harrison, Kendall, Kerr, Kimble, Lee, Morris, Rains, Real, Red River, Robertson, Smith, Titus, Travis, Upshur, Williamson, and Wood; and the remainder of Comanche and portions of Anderson, Leon, and Milam; and the following counties are requarantined: Galveston, Madison, Harris, and Houston.

No Change in Three States.

The existing quarantine of areas in the States of Arkansas, Florida, and Virginia, and the Territory of Porto Rico, is continued.

The areas freed in the various States comprise 21,227 square miles in Texas, 5,873 in Georgia, 1,946 in Louisiana, and 517 in North Carolina. The work of tick eradication is going forward successfully, it is said. In some places, however, lack of local funds has made it impossible to clean up the pest sufficiently to warrant the lifting of the quarantine. This accounts for the requarantining of many localities under the new order. As the tick is driven from other infested regions, the quarantine area will be further reduced.

SPANISH EXPERT STUDIES U. S. DEPARTMENT METHODS

Dr. Cayetano Lopez, port inspector of Barcelona for the Spanish Bureau of Animal Industry, recently spent some time in Washington studying the organization and methods of the Bureau of Animal Industry of the United States Department of Agriculture with special reference to bacteriology and pathology. The Spanish Government contemplates the establishment of a laboratory in connection with the agricultural department for the study of animal diseases.

According to Dr. Lopez his country has long depended upon European countries for information on various scientific problems, but in recent years there has been a growing tendency to turn to the United States where the work on agricultural and other science problems is attracting world-wide notice. In addition to studying the work that has been done here on certain live-stock diseases, and the organizations developed for the protection of the live-stock resources, he also collected material on laws, rules, and regulations designed to provide for quarantines and the movements of animals from one part of the country to another and took keen interest in the laws regulating virus and serum production and distribution. He was particularly interested in learning all about the serum used for hog cholera and the plans for the ultimate eradication of bovine tuberculosis.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

"THOUSAND DOLLAR" CLUB EXCEEDS GOAL BY 73 PER CENT

The first "Thousand Dollar Poultry Club" in Pennsylvania was organized November 1, 1920, by six boys in Morrison's Cove, Blair County. These boys, Ira Stoltzfus, Clair Weitzel, Kenneth Sterns, Ray Benner, Elvin Bridenbaugh, and Paul Rhoades, with a total of 645 hens, set out to clear in one year $1,000 above their feed costs.

Records for the year's work were summarized and studied at the annual meeting of the club, November 3, 1921. A total of 61,199 eggs, or roughly 5,099 dozen, were produced. During the year the number of hens was reduced from 645 to 324 by culling, but pullets were raised to take their places.

The boys made a total labor income of $1,732.75, exceeding their goal of $1,000 by over 73 per cent.

It was found best to consider the returns on the basis of labor income, which includes profits from sales, plus increase in inventory. In addition to labor income, the boys received 5 per cent interest on their investment, this being carried as an expense of the business and deducted from gross receipts with feed and other costs. Ira Stoltzfus made a labor income of $803.82, due largely to hatching and selling baby chicks and selling birds for meat consumption. The four boys who made the largest labor income followed the same plan, while those who omitted these two phases of the work made much less.

The club had a definite program of work outlined for each month of the year and held regular monthly meetings to report on its work and discuss topics in which the members were interested. Practically all meetings were attended by a member of the poultry extension staff or an assistant State club leader from the Pennsylvania State College. Feeding, housing, culling, caponizing, and all phases of poultry management were studied. In addition a team of three of the boys put on a culling demonstration in connection with the young farmers' program at State College in June, and also at the Blair County fair in August.

These club members expect to set their goal higher this year, spurred on by competition from other counties and by a second club which started November 1, 1921, in their own community. The boys have not only acquired much valuable poultry management information but have successfully demonstrated the better practices to their community. In fact, the story of their work has reached every county of the State and is enlivening interest in improving the poultry industry.

EXTENSION WORKERS FAVOR DEMONSTRATION BY CONTESTS

The success of the boys' pig clubs in Kings County, Calif., in stimulating interest in farm demonstrations, led to the inauguration of a hog-production contest among the men in the various farm bureau centers. Each farm bureau center raised a carload of fat hogs. Each carload was required to have at least six consignors, representing six separate farms of the district. These carloads were brought together at the county seat and judged for the best carload, for the best consignment, and for the best individual. The hogs were then sold at auction to the highest bidder under the regular auction system used for the hog-auction sales.

This contest has been carried on for two years and is planned for a third year. In 1920 six farm bureau centers each raised a carload of hogs, and another carload was raised by the boys in the agricultural clubs. Several thousand people attended the pork-day celebration and witnessed the judging of the results and the awarding of the prizes. Since the methods by which the winning hogs are raised and fed are part of the announced results of the contest, these demonstrations have succeeded in bringing these improved methods of production to general attention throughout the county.

BEVERLY, MASS., ORGANIZES A 4-H BIG SISTERS' CLUB

"Mothercraft" is the basic idea of the 4-H Big Sisters' Club which has recently been organized in Beverly, Mass., through the effort of the State club leader. Some of these girls who joined this new club had already had "mothercraft" lessons through the baby welfare nurse and were able to demonstrate how to bathe a very young baby. Home visits were made by the club leader to have the real mother understand exactly what the club was for—to teach the older girls how to care for the younger children.

The members brought their "club children" to the first meeting of the health center to be weighed and measured. One girl had a little brother, 15 months old, another a brother of 18 months; there were three younger sisters 5 years old, and one girl had twin sisters 2½ years old that she had cared for since their birth. The "big sisters" club includes a knowledge of washing and bathing the children, dressing them, putting a child to bed, and suitable entertainment. They are taught how to keep a record and asked to report on the games played with their "children." The making of simple Christmas toys is also taught.

MARYLAND BOYS' TEAM WINS JUDGING CONTEST AT ATLANTA

Farm boys and girls from 14 States competed in the second annual international live-stock club judging contest for agricultural club members held at Atlanta, October 17 to 22, under the auspices of the Southeastern Fair Association. The Maryland team, which won first place, will be given a free trip by the fair association to England to attend the annual agricultural and live-stock show of the Royal Agricultural Society, and to visit the farms of noted live-stock breeders abroad, as was done in the case of the successful Texas team last year.

The winning Maryland team, which made a score of 3,001 points out of a possible 3,600 in judging representative classes of dairy and beef cattle, hogs, and sheep, included the following club members: Warren Rice, Joseph Glackin, and George Worrilow, all from Cecil County. The club members were trained by county agent W. C. Snarr, of the Maryland Agricultural Extension Service, by whom they were enrolled and actively interested in agricultural club work at the beginning of the year.

These three club members were the champions in a series of community, county, and State contests in which 15,000 picked boys and girls, trained by extension agents cooperatively employed by the United States Department of Agriculture and the State agricultural colleges, competed. Each of these club members, before entering any of the contests, had enrolled as a demonstrator in improved methods of growing some crop or farm

animal which the club member cared for, and of the cost of growing which he kept an accurate record. When such club members showed aptitude for livestock judging they were afforded an opportunity to join a judging team in addition to their regular club work, and were given special training by extension agents.

Each of the teams in the competition at Atlanta, aided by natural judging ability and careful coaching by extension agents, had won first place successively at county and State fairs in their respective States. The thorough and all-around practical knowledge of live stock necessary to win in such competition is shown by the fact that the Maryland team was first in judging Guernsey, Holstein, and Shorthorn cattle and second in Duroc-Jersey hogs, two of its members, Warren Rice and Joseph Glackin, standing first and second, respectively, in judging all classes at Atlanta.

CANNED SHRIMP JAMBOLAYA WILL BE NEWEST 4-H PRODUCT

Canned jambolaya is to be the newest 4-H brand product fostered by home demonstration agents among club members in the Southern States.

Two types of jambolaya are to be introduced. Along the seacoast where shrimp are abundant, the ingredients will consist of shrimp, rice, onions, tomatoes, and seasonings, according to the old creole way of making jambolaya. Further inland and in districts where meat or fish must be considered as luxuries, cowpeas will be substituted for the shrimp to make a palatable and nourishing dish.

Like other unusual products bearing the 4-H label, shrimp jambolaya is intended to combine local products easily grown by club members into a popular salable article which will not be in competition with commercial canned goods. "Dixie Burgoo," which was recently developed in South Carolina by the home demonstration agents, has met with great popularity, demands for it coming from as far west as Oklahoma. It is to be a feature of the winter sales at club markets, and it is anticipated that "Shrimp Jambolaya" will be equally well liked.

CLUB CALVES WIN HONORS FOR HAMBLEN COUNTY BOYS

A carload of 19 baby beef steers fed this year by club boys of Hamblen County, Tenn., was exhibited at the fairs in Morristown, Knoxville, Chattanooga, and Atlanta. They were in splendid condition at the close of the club-feeding period the latter part of September, but continued to develop and fatten while on the show route.

In open competition for carload lots at the Southeastern Fair in Atlanta they won second prize in one class, first in another, champion in another, and grand champion of the show. Individuals won as follows: First on senior Angus steer calf, second to eighth on Angus junior yearling steers, first on senior Hereford yearling steer, first and second on junior Hereford yearling steers, and champion Hereford steer.

In the baby beef club contest that is open only to club boys under the guidance of the United States Department of Agriculture and the State agricultural college the winnings were as follows: First on carload of 16, first to nineteenth on individuals, and first to nineteenth on daily gains of individuals.

The winnings in open competition were $462, and in the club contests $632, making a total of $1,094 won at the Atlanta fair. One calf fed by Frank Litz, of Morristown, has stood first in every club contest this season.

This carload of steers is now being fed for the Nashville fat stock show to be held in December, where it is believed they will again walk away with some of the honors.

DEMONSTRATION TEAMS SHOW RESULTS OF CLUB WORK

The demonstration team is one of the most popular methods of extending or "selling" the results of club work to the community. The influence for good of team demonstrations in extending agricultural and home economics information is difficult to measure, but it is safe to say that when the information is properly applied by farmers and home makers it is a most effective means of improving farm and home conditions. Since the development of the demonstration-team idea in 1916 by the United States Department of Agriculture, it has grown in importance and effectiveness until last year 3,902 demonstration teams gave 5,276 demonstrations to over 232,000 persons.

The farm and home demonstrations which the club members carry out in the community depend considerably upon the community, farm, and home problems. Before the boys and girls are asked to assist in a community program of work the county club agent ascertains the suitability of the work from the standpoint of boys and girls. In order that the work for the boys and girls may become effective and be carried over for a period of years it is considered essential that the demonstrations should, (1) be a productive or profitable enterprise, (2) offer training in agriculture or home economics, (3) allow for ownership, (4) be sufficiently large to attract older boys and girls, and (5) be suited to the capabilities of the average boy or girl.

When the club members become proficient in their demonstration work in the home or on the farm, it is their purpose to extend the results of the demonstration to the community, so that all who are interested may get the benefits of them.

DAVIDSON COUNTY BOY WINS TENNESSEE PIG-CLUB CONTEST

The pig-club boys of Tennessee have held several district pig shows in the State, but never had a State show until 1921. The State show, held this year for the first time, was open to those boys in the clubs organized by the United States Department of Agriculture and State agricultural college who raised pigs either for home use or the market.

All pig-club boys in the State could compete in this contest while raising their pigs. The boys in each county were allowed to show their pigs in the county shows and the three best fat barrows or gilts from each county competed in the district shows at Knoxville, Nashville, Memphis, and Chattanooga.

From each of these four district shows the best individual was selected to compete in the final State show, which was held at Chattanooga Interstate Fair, October 5. The four competitors were Carl Simpson, of Madison County, representing the Memphis district with a Poland China; S. H. Sanders, jr., Davidson County, representing the Nashville district with a Duroc; Lela Hundley, of Hamilton County, representing the Chattanooga district with a Poland China, and Theo. Anderson, of Hamblen County, representing the Knoxville district with a Hampshire. The four animals in the State show were ideal market animals.

S. H. Sanders, jr., of Davidson County, won the State prize with his Duroc barrow, and has been declared the State champion pig club member. The prize awarded to him was a trip to the International Live-Stock Show at Chicago, November 26 to December 3, with all expenses paid. The Chattanooga Interstate Fair paid transportation charges on the pigs to Chattanooga, and a packing company in that city paid 2 cents per pound above the market price for them.

Sanders began his pig-club work June 20 with a Duroc barrow 4½ months old, weighing 74 pounds. He fed a balanced ration of corn meal, tankage, and buttermilk when he could get it, and pastured

on alfalfa. On September 18 the pig weighed 330 pounds, having gained 256 pounds in 90 days or a fraction less than 3 pounds a day. It cost 3½ cents a pound to produce the gain.

The contest taught many club members valuable lessons in producing hogs to suit the market demands.

BULL ASSOCIATIONS ARE BEST PLAN YET DEVISED

Modifications of the bull-association plan advocated by the Dairy Division of the United States Department of Agriculture are tried frequently. Most of these plans consist of loose agreements between two or more breeders. In some cases a bull is purchased by a group of men. Sometimes two or more breeders exchange their bulls. The idea in this case is to do close linebreeding, and yet avoid inbreeding.

A specialist of the department who has had extensive opportunity to observe the working of most of these methods, when asked about their success, replied that some of them would give excellent results if carried out, but it was generally impossible to get them to function, for lack of the driving power and balancing influences that are found in the regular bull association.

"These ideas," he said, "are all right, but they have no working agreements nor plans of procedure to properly regulate their operation. The experience of the department is that such attempts are useless for general adoption, unless organized in a practical, definite, businesslike way by a person of experience who can break down the prejudices of individuals. When such a person undertakes the organization of a cooperative breeding enterprise in a given locality, he generally finds it easier and more beneficial to form a regular cooperative bull association than a partnership of the type indicated.

"When attempts are made to organize a bull association it is nearly always the case that most farmers agree readily, on general principles, that the plan is excellent for the other fellow, but not so good for himself. It is necessary to have a community thoroughly interested in the plan, and familiar with its method of operation. Some leader must bring these things about, and it is most unusual if anyone other than an extension specialist will do this work. Even a partnership of two men is frequently found to meet with the same difficulty.

"After a properly organized association has been perfected, it has in it the necessary conditions for permanence. Yet a directing supervision is necessary to its fullest success, and this can best be given by the regular extension organization of the department cooperating with the State agricultural colleges, and the amount of help that can be rendered will depend on how well the form of organization fits in with the other work of the extension forces.

"The plan of action embodied in the regular form of cooperative bull association is a plan approved by experience. It does better than any other plan in use. It has been tried, and it works. Some sort of cooperation for the maintenance of better sires is essential to the fullest development of the dairy industry, and I should advise any who are interested to stay with the regular association plan and carry it through without compromise."

Corn Products Should Be Used Freely to Supplement Shortage of Potatoes

The corn crop is abundant this year and the price is low, while the potato crop is short, the production, as estimated by the Bureau of Markets and Crop Estimates of the United States Department of Agriculture, being 25,000,000 bushels less than the average yield for the five years preceding. In consequence, corn products of every sort should furnish a source of cheap and nourishing food, and may well be eaten freely by the average family, says the Department of Agriculture.

Many Appetizing Dishes from Corn.

There should be a good supply of manufactured corn products available to city and town dwellers out of the 15 per cent of the crop which is not consumed on the farm. Many appetizing and substantial dishes can be made from these corn products, including a large variety of quick breads, puddings, and "made dishes." Since cereal grains of all kinds have practically the same food values when eaten in a mixed diet with animal foods, vegetables, and fruits, the housekeeper can simply compare prices per pound in order to judge fairly well whether it is economical for her to use corn in preference to some similar preparation of another cereal.

While people in general became familiar with the use of corn meal and corn flour as a substitute for wheat flour during the World War, there is still a far lower consumption of these excellent foods in the Northern States than in the South. During the war housekeepers learned how to prepare corn foods in a variety of attractive ways, and now that there is less need of conserving some of the foods that combine well with them it should be easier to introduce them more freely into the average family diet.

Corn meal is used in making various quick breads very popular in many parts of the country though it can not be used like wheat flour in yeast-raised breads. Many of these corn breads are prepared with milk and eggs, which render them more nearly complete foods than those made principally of flour or meal.

Corn-meal mush, boiled hominy, and corn flakes are much used for breakfast foods, but the possibilities of corn meal and hominy baked, boiled, or fried, as a starchy dish to serve instead of potatoes with meat are often overlooked. These foods may also be combined with meat or fish to form so-called "made" dishes of which Philadelphia scrapple and cornmeal fish balls are examples. The housekeeper will do well to see if she can not adapt some of her recipes in which potatoes were originally used to admit corn meal or hominy grits instead.

"Hog and hominy" is a favorite southern combination which will bear imitation anywhere. While primarily a dish of boiled hominy grits or lye hominy served with fresh sausage cakes and moistened by the savory sausage fat, "hog and hominy" may be taken to mean any pork, fresh or cured, in this excellent combination with hominy.

Lye Hominy Should Be Better Known.

The lye hominy just referred to is a form of coarse hominy also called hulled corn. It is made by steeping the whole kernels in hot water which contains lye, or sometimes simply a small bag of wood ashes. When the hulls are loosened or softened the corn is soaked in plain water until the lye is washed out, and then boiled until soft. Lye hominy has a distinctive flavor which many enjoy and was formerly better known than at present. In many places it may be bought in bulk; it is also sold canned.

Wherever the retail prices of corn products warrant, housewives can use them freely in many ways without lessening the food value or attractiveness of the family meals, providing the diet also includes the right kinds and amounts of other foods. Information regarding palatable ways of using corn products as food may be obtained from the Department of Agriculture, Washington, D. C.

Parasites of Sugar-Cane Borer Becoming Established in Louisiana

Cuban parasites of the sugar-cane moth borer have been successfully established in the cane fields on a number of Louisiana plantations, where they were released during the summer of 1920. Although the parasites are present now only in very small numbers, they have proved their ability to live through the winter in Louisiana. It may be some years, however, before they become sufficiently abundant to effectually control the pest.

The parasites were imported from Cuba last summer by the United States Department of Agriculture in cooperation with a number of progressive Louisiana sugar planters. There was grave doubt whether the parasites would be able to withstand the Louisiana winter. Unlike Cuba and other tropical countries, Louisiana has a long dormant season during which neither cane nor cane borers are much in evidence. This lasts during the winter and early spring.

Show Ability to Live Over Winter.

Entomologists are now searching the Lonisiana cane fields for the parasite, this being the best time of the year to find them, and have discovered that the flies have held their own in every vicinity where examinations have been made thus far. As none of the parasites were brought in this year, this is taken as conclusive proof that they endured the cold of last winter and the scarcity of their chosen feed during the spring months.

Sugar planters are very much interested in the work and are hopeful of beneficial results in the years to come. The parasites are too scarce on any one plantation at present to have any marked effect in controlling the sugar-cane moth borer. It will probably take years, it is said, for them to become sufficiently abundant to have any pronounced effect on the plantations to which they were introduced. The planters are anxious that the control of the cane borer be hastened by the introduction of many more parasites during the coming season, for the borer is a pest which destroys millions of dollars' worth of cane in the sugar-producing sections of Louisiana, Florida, and Texas.

The adult of the sugar-cane borer is a straw-colored moth which flies through the fields, laying its eggs on the cane leaves. Small larvæ, or "worms," hatch from these eggs, and after feeding a little on the leaves make their way into the stalks. A full-grown larva is about an inch long and an eighth of an inch in width, and naturally consumes much of the cane stalks as it bores through them. It makes tunnels up and down through the stalks, converting the pure white tissue, full of sugar, into foul castings and sawdust-like "frass" and injuring even the tissue adjoining the tunnels by allowing the entrance of disease spores.

Planters Gave Material Aid.

To aid in controlling the sugar-cane moth borer, Federal entomologists recommended that a parasitic fly, a tachinid, common in Cuban cane fields, be brought to the Louisiana plantations. As Government funds were not adequate, a number of Louisiana sugar planters raised several thousand dollars last year to supplement the small Government appropriation, and five men were sent to Cuba to collect the flies. About 6,500 flies were sent in and were placed on the plantations of all contributors. Though similar to the house fly in general appearance, the Cuban insect has very different habits, in that it seeks out larvæ of the sugar-cane moth borer and kills each larva that it finds.

Fighting Western Pine Beetles Shown in Government Film

Saving western pine forests from its insect enemy, the western pine beetle, is shown in a new one-reel motion picture produced by the United States Department of Agriculture. The new film, entitled "Fighting Western Pine Beetles," is a graphic story of the work of the Bureau of Entomology of the department in controlling this pest, which annually causes great destruction among valuable timber.

The fact that the insects concentrate in certain trees affords practically the sole important means of combating it. The beetle works under the bark, girdling the tree with a maze of passageways, which in time kills even the biggest timber. In one scene, for instance, is shown a forest giant 230 feet high and 84 inches in diameter, killed by a mass attack of the pests.

The department maintains control camps in various sections where the pest is particularly bad. It is the work of the men of the camp to keep a sharp lookout for trees infested with the beetle. Tiny holes in the bark usually betray the presence of the marauder. There are two methods of destroying the pest—one for dry weather and one for other seasons. In either case the tree is felled. In the dry season, the limbs and bark are stripped off and all, including the log itself, exposed to the sun for several days. The bark, it seems, absorbs heat to 130 degrees, which is enough to kill the beetle in the larval stage. At other seasons the stripped bark and limbs are piled along the trunk and burned. This kills the insect without damaging the log.

The picture will be circulated through the distribution system of the Department of Agriculture and the cooperating State institutions. Prints may be bought by organizations and institutions at a cost of approximately $37 each. Purchasers must obtain authorization from the Department of Agriculture.

GOVERNMENT HUNTERS DESTROY MANY STOCK-KILLING ANIMALS

The current fiscal year promises to be a banner one for the Government hunters whose work is ridding the western ranges of predatory animals that prey upon the ranchmen's herds and flocks, according to reports covering the 3 months ending with September 30, last, to the Biological Survey, United States Department of Agriculture.

During that period Government and State cooperative hunters killed 8,316 bears, bobcats, lynxes, coyotes, mountain lions and wolves. That figure represents the number whose scalps were taken; some also which were poisoned died in spots where their bodies were not found. Detailed, the Government's game bag during the 3 months held 77 bears, 726 bobcats and lynxes, 7,375 coyotes, 20 mountain lions, and 118 wolves. In some sections, notably Idaho, and Nevada, the kill per man was remarkably high, averaging almost one animaal per day. One hunter took 78 animals in a single month.

By States the number of predatory animals thus accounted for during the quarter was as follows: Arizona, 316; Arkansas, 4; California, 186; Colorado, 280; Idaho, 642; Montana, 316; Nevada, (where 1,969 coyotes were killed), 2,203; New Mexico, 119; Oklahoma, 47; Oregon, 682; South Dakota, 74; Texas, 563; Utah, 1,422; Washington, 462; and Wyomiing, 1,000. In Texas 58 wolves were killed; in Wyoming, 27; and in Arizona, 14. Eighteen bears were killed in Oregon and 233 bobcats and lynxes in Nevada. In Utah, 1,277 coyotes were accounted for.

Weekly News Letter

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The News Letter is a news service, and editors are invited to reprint from it with or without credit.

SEED LOANS TO FARMERS IN NORTHWEST BEING REPAID

In the face of another unfavorable crop year farmers of the Northwest are gradually repaying the Government the loans for seed advanced them early this year as an emergency measure made necessary by three years of total or partial crop failure in drought-stricken areas. Total collections up to November 15 amounted to $286,000, according to returns reported by representatives of the United States Department of Agriculture, who are handling the work at the temporary field office established for the purpose at Grand Forks, N. Dak.

About 14,000 farmers received Government aid in the form of loans from the $2,000,000 made available by Congress for their relief. As a result of three successive bad crop years financial conditions among the farmers in the stricken regions have been very serious; many of them had exhausted their credit and were unable to purchase seed for planting crops this year. The Federal Government came to their relief with a credit of $2,000,000 to be applied by the United States Department of Agriculture.

Within 20 days after the passage of the act the department had perfected an organization and began to make loans to the farmers. In return the farmers gave promissory notes on the crops to be grown from the seed, payable November 1. Early in October repayments began coming in, and the work of collecting the loans has gone steadily forward since, in spite of the fact that the farmers are in but little better position now than they were last year. The crops have been only fair this year, with partial failures in many places, and as a result the borrowers are in financial straits again.

REPRESENT DEPARTMENT ON NATIONAL RESEARCH COUNCIL

Secretary Wallace has appointed Dr. E. D. Ball, the new director of scientific work, as the representative of the United States Department of Agriculture on the Research Information Service of the National Research Council to take the place of Dr. Carl L. Alsberg, resigned, who was the department's representative.

The Secretary has named Dr. Frederick B. Power, for many years the director of the Wellcome Research Laboratory at London, now in charge of the phyto-chemical laboratory of the Bureau of Chemistry, as a representative of the bureau in the Division of Federal Relations in place of Dr. Alsberg. Representatives from the department to the Division of Federal Relations of the National Research Council are as follows: From the Weather Bureau, Prof. C. F. Marvin; Bureau of Animal Industry, Dr. J. R. Mohler; Bureau of Plant Industry, Dr. K. F. Kellerman; Forest Service, Mr. E. H. Clapp; Bureau of Soils, Prof. Milton Whitney; Bureau of Entomology, Dr. L. O. Howard; Bureau of Biological Survey, Mr. E. W. Nelson; Bureau of Public Roads, Mr. T. H. MacDonald; Bureau of Chemistry, Dr. Frederick B. Power.

ACCOUNTING RECORDS FOR SAMPLING APPLES BY WEIGHT

Within recent years several fruit-shipping organizations have adopted a system of sampling apples by weight in determining grades and sizes of apples packed for each grower. With a view to organizing accounting records so that all unnecessary clerical work may be eliminated, the United States Department of Agriculture has devised new forms of accounting, which are now published in Department Bulletin 1006, Accounting Records for Sampling Apples by Weight.

The aim of sampling apples by weight is to speed up the movement of the fruit through the packing rooms, and to avoid the expense of repiling and checking which frequently arises in attempting to retain the identity of each grower's lot of loose fruit on the packing-house floor. A sample is selected from each lot of fruit received. This is graded and sized, and a record made of the weight of each grade and size in the sample. The percentage relation of the total weight of the sample to the total weight of the lot is then applied to ascertain the weight of the various grades and sizes that make up the lot, and the grower is given credit for the total weight, classified as to grades and sizes.

The new forms devised by the department reduce the clerical work of the sample-test clerk to a minimum, providing computation tables showing at a glance the relation between the various features of the sample and those of the entire lot. Copies of the bulletin may be had free upon application to the department at Washington, D. C.

EXCESSIVE FEEDING OF STOCK BEFORE SHIPPING UNDESIRABLE

Reports to the effect that excessive shrinkage on live stock at central markets is frequently experienced are sometimes received from members and managers of cooperative live-stock shipping associations by the United States Department of Agriculture. In some cases these reports take the form of complaints, and at times the shrinkage feature is pointed to as a weakness in the whole system of cooperative shipping.

While many things can, and frequently do, result in excessive shrinkage in live stock, investigations have shown that at times it is at least partly due to a disposition on the part of some shippers to overfill their stock before loading. This custom seems to be a relic from the days before cooperative shipping came into vogue and when most small producers sold their stock to country buyers. Under the system of marketing wherein live stock was usually sold on the basis of home weights, or at most, shipping point weights, it was usually to the producer's advantage to obtain a generous "fill" on his stock before turning it over to the country drover.

The cooperative system of shipping live stock, however, practically eliminates the incentive to excessive home or shipping point fills. Stock that is fed heavily just before loading is not only quite likely to sicken and sometimes die while in transit, but seldom takes a good fill when it arrives at market. Furthermore, where cooperative shipments are graded at the shipping point the man whose stock has been given a heavy fill receives more than his just proportion of the net returns. Home grading of cooperative shipments is, in most instances, highly desirable, but it can be successful only where the individual members "play fair" with each other or, in other words, where they really cooperate.

Production of Rosin and Turpentine Shows Large Increase Over Last Year

The production of rosin increased 29 per cent, or 350,000 round barrels, and that of turpentine 33 per cent, or 122,000 casks, during the season 1920–21 over that of the previous season, according to a recent statement of the Bureau of Chemistry, United States Department of Agriculture. A comparison of the production for the season of 1919–20 with that of 1918–19 shows an increase in the production of rosin of about 10 per cent, or 106,000 round barrels, and an increase in turpentine of nearly 8 per cent, or 26,000 casks.

The following table, compiled from reports from individual producers, shows the production of rosin by States for the last three years:

Rosin production in round barrels.

State.	1920–21	1919–20	1918–19
Alabama	150,310	141,410	136,180
Florida	548,880	495,660	414,150
Georgia	425,530	262,050	215,550
Louisiana	214,580	130,430	165,300
Mississippi	175,810	119,610	109,120
North Carolina	1,740	4,090	2,920
South Carolina	8,250	3,430	2,340
Texas	52,290	64,090	68,600
Total	1,577,390	1,220,770	1,114,160

It is seen from the above table that there was a substantial increase in the rosin production of every State excepting North Carolina and Texas. In 1920–21 Florida produced nearly 35 per cent of the total rosin, and Georgia nearly 27 per cent of the total, Louisiana ranking third and Mississippi fourth.

Florida Leads in Turpentine Production.

Florida also was the greatest turpentine-producing State, having 35 per cent of the total output, while Georgia again ranked second, with 27 per cent of the total. The production by States is given below:

Turpentine production in casks.

State.	1920–21	1919–20	1918–19
Alabama	47,220	43,800	41,580
Florida	170,870	144,180	125,680
Georgia	133,070	82,420	65,470
Louisiana	65,520	38,950	52,850
Mississippi	53,430	36,080	31,920
North Carolina	530	1,340	880
South Carolina	2,540	1,110	690
Texas	15,410	18,690	21,200
Total	488,590	366,570	340,270

MAKING PLANS TO FINANCE AND STORE THE CORN CROP

The War Finance Corporation recently announced the membership of its Corn Belt Advisory Committee, as follows: Hon. Warren T. McCray, governor of Indiana, Indianapolis, chairman; E. T. Meredith, publisher of Successful Farming and former Secretary of Agriculture, Des Moines, Iowa, vice chairman; J. R. Howard, president American Farm Bureau Federation, Chicago, Ill.; Edward Chambers, vice president Atchison, Topeka & Santa Fe Railroad, Chicago, Ill.; Alexander Legge, general manager International Harvester Co., Chicago, Ill.; Charles Brand, Urbana, Ohio; Lloyd S. Tenny, Assistant to the Chief, Bureau of Markets and Crop Estimates, United States Department of Agriculture, Washington, D. C.; and C. H. McNider, president of the First National Bank, Mason City, Iowa.

The majority of the members of the committee have conferred with the War Finance Corporation directors in Washington, and the committee will establish headquarters in Chicago, from which place its work will be directed. The committee will endeavor to obtain the cooperation of the banking organizations and banking institutions generally throughout the corn belt for the purpose of providing adequate financing for the orderly marketing of corn and the feeding of live stock.

Bankers generally will be urged to consider the problem of the farmers of the corn belt in their respective districts and to cooperate, through the Agricultural Loan Agencies of the War Finance Corporation, in providing adequate funds to meet the present situation.

In the event that the local institutions find themselves unable, for one reason or another, to take care of the situation the committee will find ways and means to create additional facilities for financing the farmers.

It is expected that the committee will cause meetings of farm organizations and bankers to be called in the different States to investigate and help work out local problems. It is felt that a great deal of benefit will be derived from the comprehensive consideration of the problems that the committee will be able to secure, and that such comprehensive participation by bankers generally may assist in a restoration of confidence and more effective functioning of banking institutions where proper security can be obtained.

It was agreed by the committee and the directors of the War Finance Corporation that existing conditions warrant the granting of liberal credits to assist farmers in storing corn by orderly marketing, and in purchasing feeder live stock through loan companies and banks. The corporation already has been engaged in making advances on a considerable scale in the live-stock sections and in the corn belt. A better price can be obtained for corn under prevailing price levels by feeding it to live stock than by selling in the market under present conditions.

CALIFORNIA LEMONS SHOW DIFFERENCES IN COMPOSITION

Lemon growers, and more particularly persons engaged in utilization of culls and by-products, are interested in the comparative acid and oil content of different varieties of lemons from various localities. The first systematic attempt to study the subject is reviewed in a new bulletin of the United States Department of Agriculture, No. 993, "The Composition of California Lemons," by E. M. Chace, C. P. Wilson, and C. G. Church, of the Bureau of Chemistry.

Tests included the Eureka and Lisbon varieties, on which the California lemon industry has been principally based, and also the Villa Franca, which has been planted to some extent but has generally been abandoned for the others.

A few well-defined differences between the varieties were found, the most striking being in specific gravity. As to oil, the Villa Franca has more than the Eureka. There is no difference in acid quantities of the three varieties. A marked difference in sugar content exists between the Eureka and Lisbon, the Eureka having the greater proportion of sugar.

The acidity of lemons was found to be highest in early autumn. Specific gravity is lowest during the winter and highest in midsummer.

No absolute correlation was discovered between the color of the skin and the composition of the fruit, but the specific gravity and the acid content of the fruit decrease with increased thickness of the peel.

No difference in composition between lemons grown on the coast and those grown inland is shown.

Morgan Breed Increased in Height and Weight on Government Horse Farm

There has been a steady increase in the weights and heights of the horses maintained in the stud at the United States Morgan horse farm at Middlebury, Vt., says a recent department circular, No. 199, Breeding Morgan Horses at the United States Morgan Horse Farm. In 1911 the average height of mature stallions was 14.3 hands and of mature mares 14.2½ hands. By 1916 these figures had been raised to 15 and 14.3, respectively, and by this year to 15.1½ and 14.3½.

The average weight of mature stallions in 1911 was 1,025 pounds; in 1916, 1,040 pounds; and in 1921 it had been increased to 1,200. During the same period the weights of mares went from 1,025 to 1,049 to 1,063 pounds.

Handy and Desirable for Many Uses.

At the same time, however, the other qualities received just as much consideration as size. A frequent objection raised against the Morgan has been that it is too small, but the steady improvement in scale and weight is making the modern Morgan a handy and desirable horse for use on farms, as pleasure saddle horses, for police mounts, and for cavalry purposes. It has good speed and exceptional endurance.

The Government farm at Middlebury was established to insure preservation of this famous American breed, and the stock at the farm is a fountainhead where good blood will always be available. The circular just mentioned contains information concerning foundation animals, the story of the movement to conserve the breed, methods of breeding and management, show-ring records, and the records made by Morgans in endurance contests held in recent years.

Since the early days of the breed up to the present time the Morgan has repeatedly demonstrated his endurance, one of the most desirable qualities in any horse, particularly a light horse. In this publication attention is called to the great reputation made by the First Vermont Cavalry in the Civil War. This regiment was mounted on Morgan horses, and official reports made to the War Department stated that the horses stood the hardships of the campaigns better than any others. Also, their short, strong legs, round, full-muscled bodies, and beautiful heads called forth universal admiration. What applied to Cavalry horses then applies to-day.

The Morgan still has the endurance. Castor, a Morgan gelding bred by the United States Morgan horse farm, made the second best time in the 300-mile endurance contest in 1919. He carried 200 pounds and made the trip in 51 hours and 18 minutes. The next year he carried 245 pounds and finished in 58 hours and 40 minutes, taking seventh place. In the contest for 1921 he was fourth out of 17 entries, carrying 245 pounds and making the 300 miles in 51 hours and 38 minutes.

This circular, which is well illustrated with halftone reproductions of beautiful Morgans, may be obtained free by addressing the Department of Agriculture, Washington, D. C.

SUBSTITUTE CORN PRODUCTS FOR BEANS, POTATOES, RICE

In view of a serious shortage this year in potatoes, beans, and rice, other starchy foods will be needed to take their place on the table. The United States Department of Agriculture points out in connection with this situation that there is an abundance of corn, and that not enough of it is being used for human food, although it may, to a large extent, take the place of the other three products in the diet. Corn products are not exact equivalents for potatoes, beans, or rice, but may be used in combination with vegetables to supply a maximum of nourishment at a low price.

There is opportunity, particularly in the Northern States, for an increased use of such products as hominy grits and corn meal. Specialists in corn utilization state that one reason corn meal is used more in the Southern States than in the North is that it is made only from sound grain properly cared for, and has a fine flavor which justly gives it popularity. If those who save corn for grinding at home, or who send it to be milled, would see that it is promptly dried and stored in rat-proof, dry rooms or cribs, the finished product would come into far greater demand as an inexpensive and suitable food to serve as the starchy element in a meal.

The potato crop for 1921 is estimated by the department at 15,000,000 bushels less than the average for the five years immediately preceding, according to the November 1 forecast, and 72,000,000 bushels less than the 1920 crop. This year's crop is estimated to be 356,074,000 bushels; the 5-year average from 1915 to 1920 was 371,283,000 bushels, and the 1920 crop was 428,368,000 bushels, estimated on December 1, 1920.

To offset this shortage of potatoes there is a surplus of 21,092,000 bushels of sweet potatoes over the 5-year average. The sweet potato surplus is unlikely to displace the potato shortage completely in spite of the encouragement by the department of the proper conservation of sweet potatoes, because the transportation charges on watery products are heavy in comparison with grains. The freight transportation costs of rice and beans are fairly comparable with corn, but the rice crop for 1921 is 4,169,000 bushels below the 5-year average, and the bean crop is also about 4,000,000 bushels short. Corn is abundant, cheap, nourishing, palatable, and transportable; it offers the best means of meeting these shortages in other crops.

Car-Door Inspection of Hay a Practice of Little Value

Car-door inspection of hay, although the most common method used, is of comparatively little value to the hay trade under present conditions, says the United States Department of Agriculture. The most serious objection to car-door inspection, it is said, is that the hay at the doors may not represent truly the average grade of the entire load.

Department Bulletin 980, Inspection and Grading of Hay, just issued by the United States Department of Agriculture, describes methods of inspection in use today, indicating the relative merits of each and giving information obtained by a comprehensive study of the subject recently made in the leading hay markets of the country. The information is presented so as to be of interest to all agencies engaged in the production and marketing of hay, including the producer, the shipper, the track buyer, the commission man, the terminal wholesaler and shipper, the broker, the distributor, and the consumer of market hay. An effort is made to present the problems of each agency.

At present the only conditions under which a car-door inspection will be accepted by receivers, it is said, is when the receiver knows from past dealings with a particular shipper that the shipper loads his car uniformly. In event such a shipper is unable to load in this manner he notifies the receiver in the invoice as to the amount of each grade in the car.

Sample inspection is used but little in terminal hay markets. It is somewhat similar to car-door inspection, but is less dependable, except under ideal local con-

ditions. The several handfuls of hay pulled from one or two bales in the car are taken for granted as truly representative of the entire car. But as these are usually taken from the door of the car there is the chance that they are not representative.

Plug inspection is the newest method of inspection, and has been in vogue only a few years. While looked upon as much better than car-door inspection, plugging, in the opinion of most hay dealers, does not really give the grade of all the hay in the car.

Copies of the bulletin may be had free upon application to the department at Washington, D. C.

FOWLS WITH FINE FEATHERS INTEREST MANY FANCIERS

The ornamental breeds and varieties of chickens often have an unusual appeal. A breeder who may be first attracted to such fowls by their unusual plumage may develop a flock later which has decided utility value, an activity which thus responds to the desire for something exceptional, and at the same time profitable. Farmers' Bulletin 1221, issued recently by the United States Department of Agriculture, on Standard Varieties of Chickens, is the fourth in a series from the Bureau of Animal Industry.

The present bulletin treats of the principal reasons for keeping chickens, and goes into particular detail regarding the fowls in these classes: Polish, Hamburg, Game, Oriental (in which are the Sumatra and Malay), and two miscellaneous breeds, the Sultan and the Frizzles.

The poultry industry of the United States is concerned mainly with the production of food, but in addition to this there are fowls of much beauty of plumage or form kept merely for pleasure, because of their rarity or unusual appearance. It is this latter interest which accounts for a large number of the breeds and varieties and for the variation in type, color, and color patterns. The bulletin may be had, free, upon application to the Division of Publications.

MEAT-INSPECTION SERVICE SHOWS FEWER ANIMALS KILLED

Records kept by the Federal Meat Inspection Service provide a reliable index of the trend of meat consumption and export. The meat in nearly all the larger packing plants is slaughtered under Government inspection and all meat exported is certified by inspectors of the Bureau of Animal Industry, United States Department of Agriculture. The figures for the fiscal year 1921 show a decrease in the total number of animals slaughtered, in the quantity of meats processed and in the quantities of meats and products certified for export. There was a decrease in all species except sheep and horses, which show an increase of 117,608 and 246, respectively. The decrease in the total number of animals slaughtered amounted to 4.7 per cent under the preceding year.

The Government maintained inspectors in 892 establishments in 265 cities and towns which compares with 897 establishments in 262 cities and towns in 1920. Inspection was inaugurated at 62 plants and withdrawn from 61 during the year. It was discontinued at 47 of them because of the stopping of slaughtering or of interstate business, at 5 by request, at 5 on account of being consolidated with another official establishment, and at 4 on account of violations of the meat inspection regulations or insanitary conditions.

During the year the Government inspectors examined 62,252,442 animals at packing plants, including cattle, calves, sheep, goats, swine, and horses, and 189,874 were condemned. Of the animals slaughtered at these plants 8,179,572 were cattle, 3,896,207 calves, 12,452,435 sheep, 37,702,866 hogs, 20,027 goats, and 1,335 horses. The horse meat goes to supply a small demand from certain classes of foreigners. Most of the horses are slaughtered in New York, New Jersey, and Ohio.

HUNTERS WHO VIOLATE LAW PAY DEARLY FOR THEIR "SPORT"

Activity of Federal game wardens in enforcing the provisions of the migratory-bird treaty act resulted in 57 convictions during October and the imposition of fines upon offenders totaling $1,282, according to reports to the Biological Survey, United States Department of Agriculture. In addition, in many instances costs greater than the fines were imposed by the courts, and in one case—that of an offender who offered two wild ducks for sale in South Carolina—a jail sentence of 3 months was meted out and a fine of $200 imposed.

In addition to the foregoing, 108 cases of alleged violation of the law were reported by Federal game wardens to the authorities for prosecution.

Offenses against the law dealt with in October varied greatly. A hotel keeper in Missouri who sold ducks to his guests was fined $50; a vendor of aigrettes in Virginia was fined $25; two hunters in North Carolina who shot ducks from a motorboat were fined $50 each and costs, while three Maryland hunters, convicted of the same offense, escaped with fines of $2 each; a man in Illinois who captured wild ducks alive was fined $10 and costs of $28.87, while another man in the same State, convicted of hunting ducks during the close season, paid $25 fine and costs of $44.77 for his illegal sport. Seven Mississippi hunters sought to bag ducks after dark and were assessed fines of $10 and costs of $27 each. Twenty sportsmen in Georgia went after doves during the close season, and were relieved by the court of $20 apiece.

CHEDDAR TYPE CHEESE MADE IN MONTANA AND WYOMING

In Wyoming and Montana there has been considerable interest lately in the home manufacture of Cheddar-type and goat's milk cheese, the home-demonstration agents of the United States Department of Agriculture and the State agricultural college report. In Lewis and Clark County, Mont., two cheese-making demonstrations were held in August, at which two Cheddar-type cheeses were made. These meetings served to stimulate a number of women to use their surplus milk to make cheese for the family, or to sell.

A cheese-making demonstration was the feature of the afternoon at a community picnic held at Bascom, Rosebud County, Mont. This was the first large community affair ever held at Bascom, and there was an attendance of about 100. Cheese is something that can be made for winter use, and for that reason the people were all very much interested. There is fairly good pasture in this district, so that milk cattle may be relied upon.

In Wyoming seven cheese-making demonstrations were held in one month. They were attended by 103 persons, of whom 20 were chosen to act as home demonstrators. The work has met a real need due to crop conditions in the State.

GAME SHIPMENTS MUST BE LABELED.

The Bureau of Biological Survey, United States Department of Agriculture, calls attention to the fact that under Federal law all packages in which wild ducks, geese, and other migratory game birds are transported must have the name of the shipper and of the consignee and an accurate statement of the numbers and kinds of birds contained therein clearly and conspicuously marked on the outside thereof. Sportsmen shipping game birds without proper markings are liable to prosecution in the Federal court and the birds to seizure and condemnation.

Arsenical Poisoned Sirup Controls Argentine Ant, Serious Citrus Pest

The most practical means of controlling the Argentine ant, which has proven a serious pest in many California orchards, is to completely eradicate them by using an arsenical poisoned sirup. This is the recommendation of the United States Department of Agriculture after conducting investigations of the methods for control and eradication of the ant which were started in 1915 and continued until 1920, in the citrus groves of California. Other methods, including banding of the trunks to prevent access of the ants, trap nesting, repellents, and various kinds of poison, were tried, but the arsenical poisoned sirup was by far the most effective. By its use ants were totally eradicated from hundreds of acres with one or two applications.

Reduces Yield of Orchards.

The Argentine ant, its economic importance, and details relating to its control are discussed in Department Bulletin 965, recently published by the department. The spread of the ant in California bears an important relation to citrus growing, says the bulletin, a relation certain to become more prominent with wider distribution and long-established infestations. Reports show that the bearing qualities of an orchard are severely impaired by the second season of infestation, the crop is almost entirely lost by the third season, and the trees will begin to die by the fourth year.

The damage to trees in ant-infested orchards does not arise from direct attacks, but is attributable very largely to mealy bugs, aphids, and various scales, which the ants foster. The constant attendance of the ants protects these orchard pests from their natural enemies and is responsible for their abnormal increase and distribution to other orchards. As a result of the ant the severe infestation of the common mealy bug has multiplied many hundred per cent in the last decade. Tests show that the eradication of the ant results in the exterimination of the mealy bug. A reduction of the latter is noticeable in from one to three months following the use of the poison.

Directions for Preparing Poisoned Sirup.

The poisoned sirup which tests show to be most satisfactory in controlling the ant is prepared as follows: Put 10 pints of water in a clean vessel over a low fire. When tepid add 7 grams of crystallized tartaric acid, then 9 grams of benzoate of soda, and then 12 pounds of granulated sugar, slowly, while stirring to prevent burning. Slowly bring to a boil and allow to simmer for from 30 to 40 minutes. Remove from the stove and add water to compensate for evaporation. Stir 2 pounds of strained honey into the mixture before it cools, and then add three-fourths of an ounce of sodium arsenite which has previously been dissolved in 1 pint of hot water and partially cooled before being poured into the sirup. Thorough stirring completes the preparation.

In orchard application place approximately 1½ ounces of the sirup in a 4-ounce spice tin with a few strands of excelsior, and hang a tin on the trunk or a main branch of each infested tree. While applications may be made at any season when the ants are active the preferred periods are autumn and spring. Monthly inspections should be made and empty containers refilled. Tests show that the average cost per tree is between 4 and 5 cents. This method has proved equally successful in eradicating the ants about residences. Place the poison bait on each ant trail at intervals of 10 to 15 feet.

MICE BEGIN WORK EARLY ON FRUIT TREES IN NEW ENGLAND

Rodents in New England, chiefly meadow and pine mice, have begun their fruit-tree work early this year, according to an investigation now being conducted by the Biological Survey, United States Department of Agriculture, and are levying a heavy toll upon the orchards of that section. More than $1,000,000 worth of fruit trees, it is estimated, were destroyed in New England alone by field mice during the winter of 1919-20, and while the damage this winter may not measure up to that record, apparently it promises to be heavy.

A representative of the department has been making an extended trip throughout the section, conferring with extension service workers, investigating conditions, and placing in the possession of local authorities the department's suggestions for dealing with the menace. In Maine, for instance, it has been found that next to severe winter weather, mice have inflicted more damage to orchards than any other agency. Ten years ago there were, according to the census, 4,521,739 apple trees in Maine orchards, while in 1920 there were 3,345,521, much of this decrease no doubt due to the severe winter of 1917-18. It is estimated that 112,500 young trees were killed by mice in 1911. In New Hampshire mice have given the apple industry a severe setback during the past decade. In Massachusetts, orchardists reported losses two years ago from mice totaling $125,000, this amount not covering the entire loss, because some orchardists did not report. In one Connecticut orchard of more than 350 acres damage by rodents during the winter of 1919-20 is conservatively placed at $10,000.

The mice, of these two varieties, strip the bark from the trees above ground and from their roots below the surface. An active campaign is under way in many sections which, if continued, will help check the rodents' depredations.

PLANT DISEASES SPREAD BY EAR WORM DAMAGED SEED CORN

Because of the damage which has been done to sweet corn throughout the Middle West this season by the ear worm, followed by root and ear-rot molds, corn growers are urged by the United States Department of Agriculture to exercise every possible care to insure the quality of their seed for next year's crop. These molds have in many cases rendered a considerable percentage of the ears wholly unfit for any purpose. Other ears, but partly overrun with molds are unfit for seed but should be used for feed only after the moldy part of the ear is shelled off. This applies especially to the corn which has been grown for seed. In certain fields in the corn belt the damage has been so great that the corn has been rendered unfit for harvesting as seed, practically no ears being found which were not injured.

These observations and reports to the department are all based on the evident and conspicuous defects that have been found in sweet corn and dent varieties. It is known, moreover, that many of the apparently good ears in these damaged fields are diseased and unless special precautions are taken, for example testing with the rag-doll germinator, they may pass as good seed corn.

During the past three years it has been found that much of the sweet corn seed which has been purchased in the open market has been badly infected with mold and ear-rot organisms. The quality of seed obtainable for use next spring depends, then, upon how the seed grown last year has been cared for, and upon the attention given the selection of seed from this season's crop.

Hawaii Agricultural Experiment Station Works to Increase Food Production

Production and preservation of food products in the Hawaiian Islands have been given special attention by the Hawaii Agricultural Experiment Station, which is located at Honolulu and is under the supervision of the United States Department of Agriculture. The islands, which are 2,000 miles or more from the nearest neighbor, would be in a precarious condition were shipping interrupted for any length of time. On this account attention is given to the production of foodstuffs that can serve not only as articles of export but which could be diverted to feed the local population during an emergency. The station has fostered in every possible way the development of diversified agricultural industries, with the idea that the excess production of foodstuffs exported should at least equal in food value the normal imports of foods, so that the two would automatically balance in case imports were cut off.

The policy of the station is to focus the major part of its attention upon crops that may prove of importance to the islands but which have not as yet been developed commercially to a large extent.

Gardening at Military Posts.

In line with the effort to make the islands better prepared for subsistence in times of emergency, the experiment station advised the numerous military posts on the island of Oahu regarding the best methods of utilizing the grounds around their quarters, with the result that the various companies produced in their gardens many vegetables that were welcome additions to the ordinary Army ration. The station was also instrumental in suggesting the best varieties of shrubbery with which to ornament the Army grounds or to camouflage the vulnerable points.

With the aid of the experiment station the pineapple industry has been enabled to develop in the Hawaiian Islands until it is second in importance only to sugar. The more important problems of the experimental stages of pineapple production have been solved, but many questions of production of seedlings, culture, fertilizing, and the like, affecting the future development of the industry are still in progress.

Avocado Growing a Promising Industry.

The report of the Hawaii Agricultural Experiment Station for 1920 states that the avocado is one of the important fruits of the islands and is capable of great expansion as an industry, but suitable methods of commercial utilization of the fruit should be perfected, and proper precautions must be taken to protect it from the Mediterranean fruit fly, which interferes with the marketing of the fruit at the mainland ports of the United States.

This fruit contains approximately 25 per cent of fat. During normal times it can be canned, made into paste, or otherwise preserved, and in case of interruption to shipping it can be used to feed the people of the island, especially to take the place of imported fats.

Mangoes, Papayas, and Other Tropical Fruits.

In the Hawaiian Islands strawberries are usually grown only at elevations of 1,000 feet or more. It has been found that with proper precautions good strawberries can be grown at sea level, as well as at higher elevations. The method is to raise them in a barrel filled with properly prepared soil. The strawberry plants are planted in holes arranged at suitable intervals in the sides of the barrel. The barrel can be placed on sled runners so that it can be shifted to a shady place when the summer's sun gets too hot.

Extension of the culture of mangoes is being encouraged by the experiment station. Two varieties are being tested, the Pirie, a mango introduced from India, and the Victoria, a scarlet-colored mango of obscure origin but of striking appearance. The Pirie mango has been under cultivation in and about Honolulu for 10 to 15 years and has been found well adapted to conditions prevailing there. In addition to its exquisite flavor and lack of stringiness, the Pirie is practically immune to the ravages of the Mediterranean fruit fly.

The papaya is becoming more and more popular as better strains are developed. The station has three types of delicately flavored papayas. Seeds and seedlings of these were distributed to the public by the experiment station on its semiweekly distribution days during almost the entire year. The Solo variety stands out as the best flavored. The experiment station has worked out methods of preparing a papain of good quality from papayas and of determining its activity as a digestive.

The Macadamia nut has continued to show its potential value as a supplemental food crop. It is about five-sixths of an inch in diameter and has a thin, tough shell. The meat is solid, spherical, and somewhat similar in quality to a Brazil nut.

It has been found that many varieties of food crops adapted to the mainland portion of the United States are not at all suitable for growth at certain altitudes in the Hawaiian Islands. For example, corn from imported seed of standard varieties has often been a total failure at low altitudes in the islands, whereas corn especially bred for conditions similar to those of Hawaii yields nearly 50 bushels of shelled corn per acre near sea level and 100 bushels an acre at 600 feet elevation. By the introduction of improved varieties and methods of culture the area planted to corn in the islands has been rapidly increased to over 10,000 acres, exceeding rice in acreage, although somewhat less in tonnage. Corn stands third in acreage of the crops grown in the islands.

The practice with forage crops throughout Hawaii is to feed them green rather than in the cured stage. This is due to the fact that these crops can be harvested practically every day in the year. The station's work in this connection has therefore been principally that of obtaining the most suitable grasses for soiling purposes. Merker grass and Napier, or elephant grass, have proved valuable supplements to such fairly well-established crops as the Japanese Uba cane, sorghum, and Sudan grass. Cowpeas, pigeon peas, and beans have also been found valuable for green manuring and feeding purposes.

Starch-Producing Crops.

Crops that could be used for starch manufacture, which have received attention at the experiment station, are cassava, edible canna, and sweet potatoes. The edible canna is looked upon as an emergency crop for the island population in time of interruption of shipping. It is also of value as a hog feed during normal times, and is believed to have possibilities as a starch-producing plant. Several promising varieties of cassava and sweet potatoes have been found which it is believed will do well in certain parts of the islands.

A survey made by the experiment station shows that rice culture has decreased from 10,000 acres in 1907 to about 6,200 acres at the present time. This is largely due to the fact that the old Chinese who formerly cultivated the rice fields are dying off and immigration laws forbid the replacement of these laborers. The present trend is toward a decrease of the area planted to rice and an increase of that used for sugar cane. Primitive methods of culture are used and all the rice grown is consumed locally.

Control Moths and Save Clothes— Simple by Adopting Proper Precautions

Three species of clothes moths attack articles made of wool, fur, bristles, hair, and feathers, and their life histories are so similar that one system of control is applicable to all, says the United States Department of Agriculture. These moths pass through the usual life cycle of insects—adult or parent moth, the egg, the larva or worm, and the pupa or chrysalis stages. The adult or parent moth is the miller, commonly seen flying about rooms and closets. Although moths are particularly abundant during the spring and late summer, in heated houses they may prevail at any time.

The moths themselves do not damage clothing, carpets, or similar articles, but they lay many small white eggs, in some instances as many as 200 eggs each in a period of three weeks. Dependent on the temperature, these eggs hatch in from 5 to 10 days, the tiny worms beginning to feed as soon as they hatch and reaching maturity in from three months to over one year. The rapidity of growth of the larvæ depends upon favorable weather conditions and the kind of material available for feed. It is the larvæ that cause the destruction of clothing, as they prey upon clothes, furs, skins, and the like, being well equipped for such activities with well-developed jaws.

Simple Control Methods Are Effective.

It is a simple matter to control moths where the proper precautions are observed. All clothing that is stored should be frequently brushed or beaten and well sunned at regular intervals. The larvæ and eggs of clothes moths are very delicate, and a thorough brushing or beating will either crush or remove them. In brushing, pay special attention to the seams and pockets where dust and lint may have collected.

All clothing should be well cleaned before it is packed away in chests, as clothes moths prosper upon soiled spots in wearing apparel. After thoroughly brushing, beating, and sunning, articles to be stored away should be wrapped tightly in several thicknesses of newspapers or heavy wrapping paper, making certain that the paper at the end of the bundle is so well bent back upon itself that no opening is left through which the moths can crawl. These pests will not eat through paper, while tight wrapping makes a firm mass of clothing which still further protects it.

Fumigation with carbon disulphide is a most effective treatment. Clothing should be thoroughly brushed and then packed in a tight trunk or chest and fumigated. While carbon disulphide fumigation kills the clothes moths, it will not keep moths from entering later and developing new infestations. A saucer should be placed on top of the clothing and the carbon disulphide poured into it. This chemical evaporates, liberating a gas that sinks down into the clothing and kills the moths. It may be necessary to treat clothing several times a year where these articles are not kept in a tight storage place.

Although the odor of carbon disulphide is very foul it soon disperses and does not injure the fabric. This material can be purchased at any drug store. The gas which is formed is heavier than air and must be kept away from fire the same as gasoline.

Another excellent method of protecting clothing comes through the liberal use of naphthalene in the form of moth balls or flakes. In tight chests or trunks one pound of naphthalene, well distributed among the clothes, will kill all moths and eggs and larvae. Well-grown larvae are killed with difficulty by napththalene, so it is essential to brush clothes thoroughly before placing them in the chests and exposing them to such control treatment. Unless the trunk or container is very tight, the fumes of naphthalene will escape and not kill the moths, as this chemical is effective as a killing agent only when inclosed in an air-tight receptacle. Naphthalene scattered about bureau drawers may keep moths away to some extent but will not kill them.

Cold Storage Affords Protection.

The best method of clothes protection, and the one now commonly adopted by dealers in furs and carpets, is cold storage. It has been found that articles held at a temperature of 40° F. will be absolutely protected against damage while in storage. Where the cost of cold storage is not a critical factor, the adoption of this method of protection of goods during warm weather is strongly recommended.

Another excellent method of killing all clothes moths in the house or warehouse is by fumigation with hydrocyanic-acid gas. This is a most dangerous as well as effective gas, and the fumigation of a house to kill clothes moths in rugs and carpets as well as other furnishings should not be undertaken without a full knowledge of how to proceed. Such information may be had from the United States Department of Agriculture, Farmers' Bulletin 699, which presents detailed information regarding the use of hydrocyanic-acid gas.

DEPARTMENT ESTABLISHES DAIRY FARM IN OKLAHOMA

In order to study the possibilities of dairying and to develop better methods of crop utilization in the dry-farming regions of the Southwest, the Bureau of Animal Industry of the United States Department of Agriculture has established a herd of purebred dairy cattle on a farm in the semiarid district of northwestern Oklahoma. The Bureau of Plant Industry has had a farm here near the town of Woodward for many years, and has studied such crops as grain sorghums, broom corn, forage sorghums, cowpeas, alfalfa, rye for the prevention of soil blowing, and winter wheat for pasture. From now on the farm will be used cooperatively by the Bureau of Plant Industry and the Bureau of Animal Industry. This is considered a necessary combination, as most of the feeds grown there are of the kind that must be fed largely to live stock.

The Dairy Division hopes to determine whether or not it is desirable to produce live stock under those dry-land conditions, and to grow the crops which will give the largest returns per acre in terms of milk or cream. The question is not one of crop tonnage, but of the amount of finished dairy products that can be turned out. The work here is not designed to discover the best practices for any particular State, but to study practices that will be desirable in the large dry-land regions where only certain crops can be grown.

The people of this little Oklahoma town have shown great enthusiasm in regard to the investigations that the Department of Agriculture contemplates. The town purchased 160 acres adjoining the old Government farm, and turned it over free to the Government for a period of 99 years. The voters of the town were almost unanimous in favor of this donation.

The cattle that are being used on this farm are also in the country-wide breeding project being conducted by the Dairy Division, and bulls have been sent from the Government farm at Beltsville, Md. In this breeding project, which now includes more than 300 cows and 50 bulls, it is hoped to determine what are the best methods of breeding for the improvement of cattle. The large scale of this investigation should make the results particularly valuable.

Locate Farm Dairy Houses Conveniently and Build of Durable Sanitary Material

Because of the delicate nature of milk and its susceptibility to contamination by dirt and odors, dangerous to the health of the consumer and likely to cause loss to the producer, a dairy house constructed on sanitary principles and properly located is a necessity on every farm that sells milk.

Consider State Regulations.

The regulations of the different States vary, but it is usually found desirable to have such building a short distance from the barn or, if it adjoins the stable, to have only an outside entrance. Prompt removal of the milk to facilitate cooling and prevent contamination is always necessary. A concrete, brick, or tile house with asbestos or slate roof, although comparatively costly, is fireproof, durable, and sanitary, and requires few repairs. Other materials that may be used are stone, cement blocks, and wood.

The floor of the milk house is particularly important, and concrete, because of its ability to withstand moisture, decay, and wear, is the best material. Although dressed tongue-and-groove lumber may be used for the inside walls, cement plaster makes the best finish. Light is important, and window space should be equal to at least 10 per cent of the floor space. To keep the air sweet and dry good ventilation is needed. In some climates windows and doors will provide it, but in most localities other means, such as a ventilating flue, will be found necessary. Flies and other germ-carrying insects must be kept out with screens so arranged that they will not interfere with the operation of the windows and doors.

Plentiful supplies of cold and hot water, for cooling and for cleaning and sterilizing, are a necessity if a high-class product is to be turned out. The unavoidable spilling of milk and the use of quantities of water demand an adequate drainage system that will carry the waste well away from the house. Most local and State health departments have specific regulations on this subject.

Plans in New Farmers' Bulletin.

All of these problems of dairy-house construction are discussed in detail in Farmers' Bulletin 1214, Farm Dairy Houses, just issued by the Dairy Division of the United States Department of Agriculture, copies of which can be obtained free of charge. In this bulletin plans and pictures are given of 9 types of houses, suitable for farms having from 10 to several hundred cows; for dairies where milk is sold in cans or bottles or is made into butter; and for those using hand or power machinery. Those who are interested in any particular plan may obtain blue prints from the Division of Agricultural Engineering, Bureau of Public Roads, United States Department of Agriculture, Washington, D. C.

CEREAL GROWING AREA DECLINING IN ENGLAND

Areas of wheat and oats in England and Wales have declined since the war, and the wartime policy of promoting self-sufficiency in food production is apparently abandoned, reports the Agricultural Commissioner of the United States Department of Agriculture in London. The wheat area of 1919, 2,221,195 acres, declined to 1,874,652 acres in 1920, in spite of the assured subsidy on all wheat planted in 1920 and for the following 4 years. Recent economic circumstances have required that this policy of giving wheat subsidies be abandoned and the promise covering the 4 years beginning with 1920 has been withdrawn.

The statistical record also shows a shrinkage in the area of oats in England and Wales from 2,564,326 acres in 1919 to 2,271,783 acres in 1920. This land goes partly back to luxury crops and garden truck, but the larger part to grass in the return to live-stock farming which was followed before the war.

Successful Campaign to Teach School Children Correct Diet

A campaign to improve the diet standards of children of school age was recently conducted in Akron, Ohio. As a preliminary step 1,011 children were weighed and measured under the direction of school authorities. Of these children 58 per cent were underweight, nearly a fourth of these being more than 10 per cent underweight. On the suggestion of the home demonstration agent of the United States Department of Agriculture and State agricultural college the children were given one-half pint of milk in the middle of the morning and the other underweight children were merely taught how to improve their weight themselves. At the close of the second month it was found that 67 per cent of all the children underweight had made some gain.

At this time the agent met with the mothers of these children to demonstrate the results of improved diet and to explain how to plan balanced meals. In this demonstration 60 boys and girls who had the largest underweight percentages were selected for physical examinations, made by a physician in the presence of the parents. Each mother was told what the proper average weight for age and height is. She was given a health card on which to record her child's health habits for a week. The record was to show the number of hours of sleep daily and a complete diet list, which was to be filled out and used according to instructions given by the home demonstration agent. Other health habits, such as deep breathing and teeth brushing, were also to be recorded.

The demonstration was followed by weekly conferences of the mothers of the underweight children with the doctor, nurse, and home demonstration agent, at which the health record for the week was examined, the weekly weights taken, and additional instruction and advice given the parents. As a result almost every mother reported intelligent interest on the part of the children in the food work.

"We never sit down to the table but that the question arises as to whether or not we are having the right things to eat," said one mother in speaking of the excellent results achieved through this piece of nutrition work.

MORE WAREHOUSEMEN TAKE OUT FEDERAL LICENSES

More interest in availing themselves of the advantages of having their warehouses licensed under the Federal act administered by the United States Department of Agriculture is being shown by warehousemen who operate on a large scale. On October 31 there were 274 licensed cotton warehouses with a total capacity of approximately 1,127,380 bales. This means that licensed cotton warehouse space has been almost trebled since April 1, when the capacity of the 238 cotton warehouses licensed at that time was 429,975 bales.

The increase in the number of licensed warehouses is not so great as the increase in capacity. What has been accomplished in the past few months is to interest warehousemen who operate on a large scale. For instance, in that time

one warehouse has been licensed with a capacity of 75,000 bales, another with 52,000, another with 40,000, two others with 30,000, one with 25,000, two with 22,000, one with 20,000, and quite a large number with between 10,000 and 20,000 bales. The normal cotton crop is about 12,000,000 bales. The licensed space, therefore, is equivalent to about one-twelfth of the normal crop. It is seldom that more than one-third of the cotton crop is in storage at one time; the licensed space then can care for better than 25 per cent of the cotton ordinarily in storage.

The increase in grain warehouses has been unusual. On April 1, 56 warehouses with a total capacity of 2,108,400 bushels were licensed. There are now approximately 292 licensed grain warehouses, with a combined capacity of 13,925,720 bushels. This increase is accounted for by the fact that recently one grain warehouseman operating a line of warehouses in Oregon, Washington, and Idaho had 118 licensed, and another operating in Washington and Idaho had 68 licensed, while several other grain men who conduct a great many elevators placed from 8 to 10 under the Federal system.

There are now 16 licensed wool warehouses, with a capacity sufficient to accommodate about one-seventh of the annual wool clip, and one licensed tobacco warehouse with a number of tobacco applications pending.

HOW GOVERNMENT CROP REPORTS ARE MADE UP

(*Continued from page 1.*)

the sheets are shown for each State, in parallel columns, the estimates of the crop specialists and State field agents, the average of returns from the county reporters, the average of returns from the township or local reports, and the average of returns from special reporters, together with the report for the previous month, for the same month of the previous year, and the 10-year average for the same month. The chairman of the board reads the comments of the field agents and crop specialists, the reports of the Weather Bureau for each State, and such other data as may be available.

With this information before him, each member proceeds, independently and without consultation with other members, to make his individual estimate of the crop condition for each State. The chairman then lists the individual estimates in parallel columns and reads them. They are discussed by the board, and a single figure is adopted for the crop report. This figure is not an average of the figures of the individual members of the board, but a figure upon which all the individuals agree after hearing what factors influenced each member in forming his judgment. As a general rule, there is surprising unanimity of judgment, and little difficulty is had in reconciling differences.

As fast as the figures are determined by the board, they are turned over to a force of expert computers, who convert the condition figures into numerical estimates of yield per acre for each State, and into United States totals or averages.

Immediate Release and Distribution.

The report is then summarized and a sufficient number of copies run off for immediate distribution to the press. Shortly before the time set for issuance of the report, the Secretary or Acting Secretary is admitted to the board room, reviews the work of the board and approves the reports. Exactly at the minute set in advance by the Secretary, the report is released to representatives of the press associations and telegraph companies in waiting in another part of the building, and is at once flashed over the country by wire for publication in daily newspapers. At the same time, a telegraphic report is sent to the office of each State field agent, who issues a State report for papers in his own State. An hour later manuscript is forwarded to the Government Printing Office for publication in the Monthly Crop Reporter, which goes to all the voluntary reporters of the department.

Since the inception of the crop estimating work by the United States Department of Agriculture there has been but one instance where an employee made an attempt to furnish advance crop information to special interests. That employee was prosecuted. Any officer or employee who gives out any information in advance of publication, or who speculates in any produce of the soil, is subject, under a criminal statute, to a fine of $10,000 or imprisonment for 10 years or both. An officer or employee who knowingly compiles or issues any false statistics is subject to a fine of $5,000 or imprisonment for five years or both.

PUREBRED COCKEREL SALE NEW MOVEMENT IN WEST

The idea of purebred sire sales has been successfully extended to poultry in Sonoma County, Calif. The county agent reports that there were received, preparatory to a White Leghorn cockerel sale held at Petaluma on October 15, consignments from 14 breeders on the Pacific coast.

Most of the 52 cockerels consigned represented unusually high breeding for poultry. Many of them had pedigrees extending back eight or nine generations, with trap-nest records of their maternal ancestors. Most of them had inheritance records of over 275 eggs, and some over 300 eggs, annually. A significant fact is that 1,000 copies of the catalogue of this sale were printed, indicating the widespread interest in guaranteed purebred poultry stock.

NEW PUBLICATIONS ISSUED.

The following publications were issued by the United States Department of Agriculture during the week ended November 23, 1921:

Drying Crude Drugs. By G. A. Russell, Expert, Office of Drug, Poisonous, and Oil Plant Investigations. Pp. 16, figs. 6. Contribution from the Bureau of Plant Industry. (Farmers' Bulletin 1231.)

The Weighing of Market Hay. By G. A. Collier, Investigator in Hay Marketing, and H. B. McClure, Specialist in Hay Marketing. Pp. 30, figs. 8. Contribution from the Bureau of Markets and Crop Estimates. (Department Bulletin 978.) Price, 10 cents.

Market Statistics. Prepared under the direction of Carl J. West, Specialist in Market Statistics, assisted by Lewis B. Flohr, Investigator in Marketing. Pp. 279. Contribution from the Bureau of Markets. (Department Bulletin 982.) Price, 30 cents.

Reconnoissance Soil Survey of the Central Southern Area, California. By J. E. Dunn, L. C. Holmes, and A. T. Strahorn, of the U. S. Department of Agriculture, and J. E. Guernsey, of the University of California. Pp. 136, pls. 5, fig. 1, maps 2. (From F. O. Soils, 1917.) Price, — cents.

Soil Survey of Winnebago County, Iowa. By W. E. Tharp, of the U. S. Department of Agriculture, and G. H. Artis, of the Iowa Agricultural Experiment Station. Pp. 31, fig. 1, map. (From F. O. Soils, 1918.) Price, — cents.

Service and Regulatory Announcements, Bureau of Markets and Crop Estimates, No. 69. Suggestions for an Ordinance to Establish, Locate, Regulate, and Maintain a Public Farmers' Market, and for Other Purposes. Pp. 14. Price, 5 cents.

Same, Bureau of Markets. Index to Nos. 1–50. Pp. 14. Price, 5 cents.

A copy of any of the publications listed above, except those otherwise noted, may be obtained free upon application to the chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publications desired. After the department's supply is exhausted, publications can still be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., but by purchase only. Send all remittances to the Superintendent of Documents direct, not to the Department of Agriculture.

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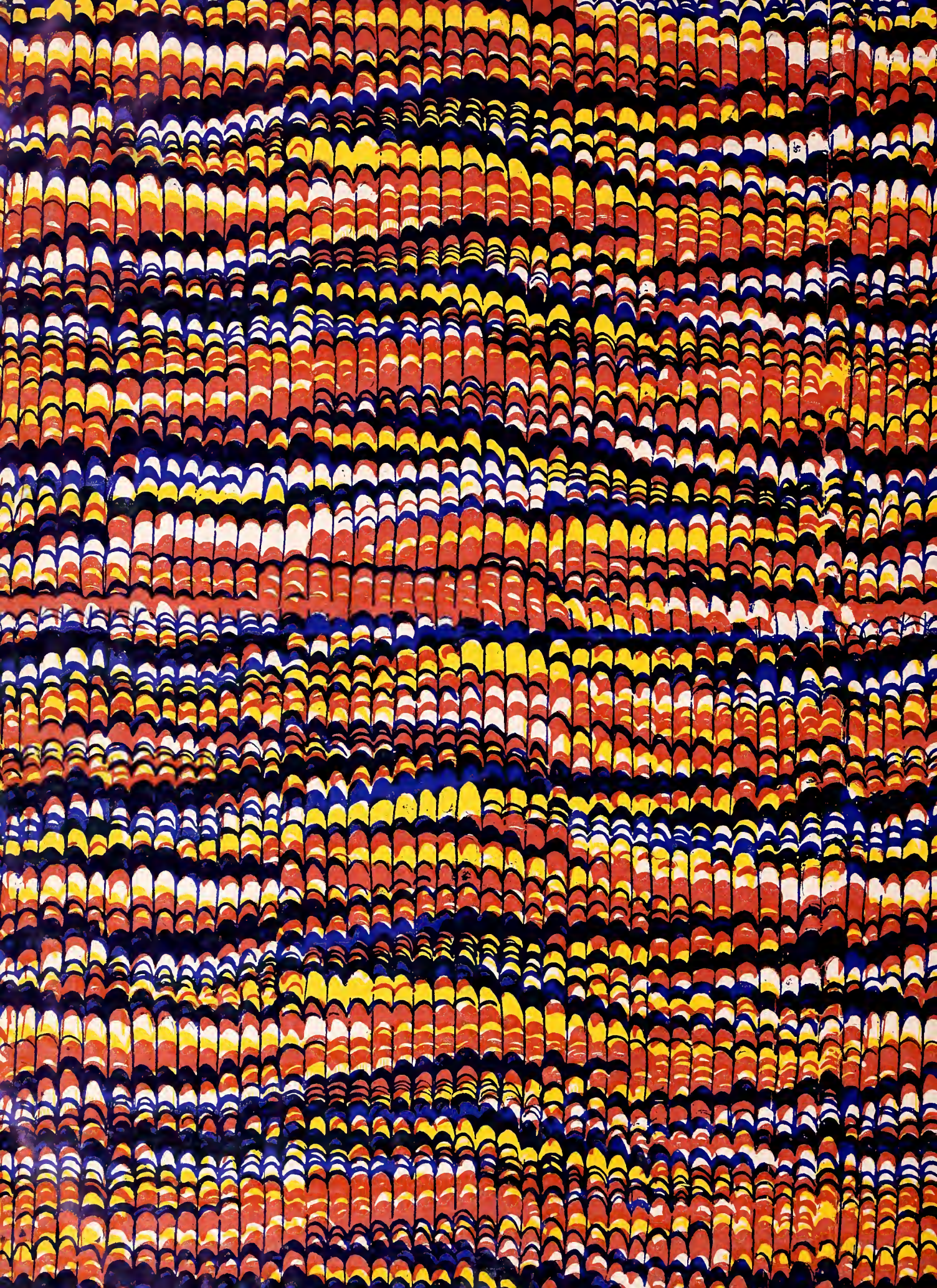

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